

MOBILITY MATTERS: IMPROVE REGULATORY COMPLIANCE, INVENTORY AND INVOICE MANAGEMENT IN CPG/F&B

WHITE PAPER

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ISSUES IN CONSUMER PACKAGED GOODS (CPG)/ FOOD & BEVERAGE (F&B)

Process manufacturing is highly automated, more dependent upon large expensive assets (equipment) in the manufacturing process itself, rather than people — unlike discrete manufacturers. But manufacturers in the consumer packaged goods sector share the challenges of both process and discrete manufacturing: highly automated and machinery-focused on the production line, but very people and labor intensive in the warehouse and distribution operations.

There are two categories of consumer-packaged goods (CPG) manufacturing: perishable (or produce to order) and non-perishable (produce to inventory). Produce to order manufacturers, typically in the food and beverage sector, are dealing with inventory that must be delivered immediately (such as bread, fresh fruit juice, milk or doughnuts) due to a very short shelf life. Many CPG/F&B manufacturers are implementing enterprise mobility solutions to address the specific issues they are facing as well as to improve data collection processes, reduce errors and improve accuracy overall and finally to squeeze out any remaining inefficiencies inherent in paper based processes.

Direct Store Delivery Productivity

For the perishable goods manufacturer, elaborate warehousing solutions are not required: inventory is not stored in the warehouse, but rather briefly held in the warehouse while waiting to be loaded

on a truck. However, the perishable goods manufacturer does require a robust direct store delivery (DSD) application for managing the delivery of goods. This critical enterprise mobility solution (DSD) streamlines and automates the complex collection of a wide range of data including: recording credit for product that has reached the end of its lifecycle; projecting shelf life for the newly delivered shipment — including product from the prior delivery still on the shelf that will have a shorter shelf life; recording of quantities delivered; recording of returns (such as damaged bread or leaking milk containers) and the appropriate credit to the customer.

A DSD enterprise mobility solution increases the accuracy of data collection, and dramatically reduces the time and associated expense of collecting and processing the large amount of routine data. The result is a significant increase in the productivity of route sales representatives, and often, a corresponding increase in sales. In addition, the real time data strengthens the ability to properly forecast store orders, positively impacting inventory requirements, profitability — and ultimately your cash to cash cycle.

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Maximum Warehouse Productivity

The non-perishable goods manufacturer (produce to inventory) does require a robust warehousing solution. Warehouse Mobility solutions replace the error-prone manual paper and pen processes with automatic data capture and real-time information, delivering maximum productivity and lower operational costs. For example, pick orders sent to a handheld computer include the most

efficient routing for the forklift driver to collect items for that order — and it might even include items on your next order that are located in the same vicinity. Conversely, as raw materials are received, Warehouse Mobility ensures that the products are placed in the correct area of the warehouse, enabling rapid replenishment of materials on the manufacturing line.

Regulatory Issues

Regulations in the U.S. (Public Health Security and the Bio-terrorism Response and Preparedness Act of 2002) require food products to be traceable through all stages of production, processing and manufacturing: detailed records of products as they move through

the supply chain must be created and maintained. The EU legislation (Article 18 of directive 178/2002) mandates similar requirements in Europe. Warehouse Mobility solutions provide compliance with these regulations with very little impact on your productivity by automating the capture of this data from receipt of raw materials in the warehouse, through the production line to the finished goods warehouse, and even beyond your walls to the customer.

Merchandising

Both produce to order and produce to inventory manufacturers have a merchandising function. Mobile Field Sales solutions enable merchandisers to collect that information faster and more accurately — and transfer that information to your business systems immediately. The increase in productivity allows merchandisers to increase the value of the visit by collecting additional competitive information and spending more time with the store manager. The many benefits for the manufacturer include improved inventory management, better promotional campaign management, more competitive intelligence, a more streamlined supply chain and stronger brand management.

What follows are three case study snapshots that illustrate the power of enterprise mobility applications in the CPG industry.

CASE STUDY # 1

SOLUTION CATEGORY:	Industrial CRM
APPLICATION:	Mobile Field Sales/Direct Store Delivery
INDUSTRY:	CPG/Food & Beverage
COMPANY:	Major worldwide beverage manufacturer

Business Issue:

Eliminate inefficiencies in the invoicing function — and resulting impact on profitability



Two major issues in the distribution operation of a worldwide food and beverage manufacturer were impacting profitability, both in the direct store delivery (DSD) function. Food safety laws require the ability to trace product from shipping dock to the customer door to support product recalls — the manual

process in place was error-prone and reduced driver productivity. In addition, the manual processes were too slow — information on changes and errors in customer deliveries did not reach the company's invoicing system in time to issue a correct invoice the first time. Not only was the general productivity of the accounting department affected, but the delay in proper invoicing also resulted in a delay of customer payments — and an increase in DSO (days sales outstanding). The company was searching for the best way to eliminate the inefficiencies of the manual data capture process.

The before scenario:

Over 20,000 drivers making an average of ten deliveries per day utilized a manual system — a clipboard, paper and pen — to complete delivery paperwork at the customer site. When the driver returned at the end of the delivery day, the paperwork was placed in the data entry bin along with paperwork from hundreds of other drivers, waiting for entry into the company's invoicing system. Exceptions to the original order — either errors in the order from improper packing at the warehouse, or changes the customer made at the time of delivery (such as a change in quantity and/or flavor) — were finally available in the company's invoicing system. By the time the order changes were noted in the system, the customer's invoice had already been issued. The invoice discrepancies and

the time required to update and send corrected invoices translated into late customer payments. The DSO increased — with a negative impact on the company’s cash flow.

Solution

Automated real-time capture of delivery data

The after scenario:

All drivers now carry a mobile computer equipped with bar code scanning capability, and wireless wide area network (WWAN) and wireless local area network (WLAN) connectivity. Now, product is scanned at the time of delivery, addressing both of the company’s key issues.

Discrepancies in the original order are immediately recorded, including additions the customer made at the time of delivery as well as warehouse errors. In addition, the same information provides the company with an accurate record of the end product location for regulatory compliance in the event of a product recall. Mobile devices within range of a WWAN instantly transmit the data to the company’s invoicing system. Any data residing in the mobile computer when drivers returned at the end of the day (if, for example, drivers traveled outside the range of the WWAN during the day) is automatically uploaded to the company’s invoicing system as soon as the device connects to the company’s WLAN.

Benefits

Real-time automated data capture dramatically increased the productivity of the DSD function. With over 20,000 drivers, the productivity increase had a major impact on overall profitability. Benefits included:

- **15 percent decrease in DSO.** The availability of real-time data for accurate and timely invoicing streamlined the invoicing process, resulting in a 15 percent decrease in DSO — from 45 to 39 days.
- **Regulatory compliance for traceability.** Now that the bar codes of delivered product are scanned and the lot numbers are captured, the company is prepared for quick and easy traceability of the product right to the customer in the event of a recall.
- **10 percent increase in driver productivity.** The elimination of manual paperwork increased driver productivity. Each driver now can make a minimum of one additional stop per day, maximizing the company’s existing workforce.

- **9 percent increase in sales.** Since drivers frequently sell additional product beyond the order at delivery time, the additional stop per day provided an increase in sales opportunities — and a 9 percent increase in actual sales.

- **15 percent increased productivity of administrative staff.** The elimination of the need to manually key in the information into the computer dramatically increased the productivity of the administrative staff, freeing staff up to spend more time on more critical business activities. The existing workforce is again maximized.

- **Six Sigma data capture.** The delivery process now achieves Six Sigma data capture due to the elimination of errors inherent with manual processes. Eradicating the redundant manual procedures removed two opportunities where data errors could occur: the manual completion of a paper form by the driver, and the entry in the computer by a data entry operator.

CASE STUDY # 2

SOLUTION CATEGORY: Shop Floor

APPLICATION: Machine Monitoring and Mobile SCADA

INDUSTRY: CPG/Food & Beverage

COMPANY: Major European food manufacturer

Business Issue

Eliminate regulatory compliance impact on productivity and profitability



European Union laws state that a consumer should receive products exactly as they are advertised. In order to ensure compliance, package weight must be exactly as stated on the package label, or higher. In order to maintain the exact weight throughout the manufacturing process, the company needed real-time visibility of the manufacturing execution system (MES) layer data and key performance indicators (KPIs) — impossible with the manual paper-based system that was deployed on the shop floor. In order to ensure adequate package weight, the company was forced to set the target weight higher than the stated weight. The resulting giveaway (amount exceeding specifications) was measured in thousands of pounds of raw material, negatively impacting

profitability. In addition, the paper-based system was generally inefficient and error-prone, reducing employee productivity.

The before scenario:

Some of the MES layer data related to quality and process management as well as quality analysis was manually collected on the shop floor using a paper based system, and entered into the computer at a later time. The resulting one-day time lag between when data was collected and when it was visible made it impossible to dependably manage the manufacturing process to meet stringent regulatory requirements, resulting in giveaway. Additional data required to prove compliance was also captured manually with paper and pen, further reducing productivity.

Solution

Real-time capture of MES layer data and remote SCADA visualization

The after scenario:

Shop floor employees now capture MES layer data in real time via mobile computers. The data is then transmitted instantly via a wireless LAN to the company's business system, enabling real-time measurement and reporting of KPIs. The company's SCADA application has also been extended to a mobile computer, enabling SCADA visualization when away from the desk. As a result, production engineers now have the process information necessary to monitor the shop floor systems while actually on the shop floor. The real-time data provides the information to make instant decisions to maintain throughput and quality. Product weight is measured inline every 15 minutes to ensure target weight is met — but not exceeded. And the ability to remain on the shop floor allows production engineers to watch the effect of any changes in real time.

Benefits

As a result of mobilizing shop floor data, this major manufacturer has dramatically increased shop floor employee productivity, nearly eliminated giveaway, and reduced the cost of meeting regulatory compliance.

- **Elimination of \$35,000/day in giveaway.** Armed with the data to control the manufacturing process in real time, the company was able to minimize giveaway by \$17,500 for each of the two daily shifts.

- **Dramatic 18 percent staff productivity increase.** Over 400 shop floor processes were automated – from MES data collection to regulatory compliance paperwork. The elimination of the time spent completing forms and entering the data into the computer not only increased productivity, but also reduced the errors inherent in manual data collection.
- **Cost-effective regulatory compliance.** The cost of the processes required to meet regulatory compliance was greatly reduced, due to the automatic capture of data. In addition, the storage of all QA (quality assurance) data as well as Hazard Analysis and Critical Control Point (HACCP) information ensures that the company is ready in the event of an audit.
- **4-month rapid return on investment (ROI):** The major savings in giveaway coupled with the staff productivity increase provided a very rapid return on investment in just 4 months.

CASE STUDY # 3

SOLUTION CATEGORY:	Materials Management
APPLICATION:	Inventory Management
INDUSTRY:	Consumer Packaged Goods
COMPANY:	Major food and beverage manufacturer

Business Issue:

Decrease worldwide inventory costs through real time global inventory visibility



When this large corporation implemented a worldwide enterprise resource planning system (ERP), one of the major goals was to improve inventory management on a global basis. The company sought specifically to increase staff productivity and reduce inventory requirements. In order to accomplish

this, the company planned to utilize the ERP system to collect inventory information from business units around the world, delivering global inventory transparency and product traceability. While this major investment cost approximately \$20 million per month, the company was still unable to obtain the needed inventory information as planned.

The various locations had architected business information systems to meet unique local needs, and as a result of that customization, the incoming data was not in a standardized format, and could not be easily merged for analysis and reporting. The company was looking for a means to standardize and automate the collection of inventory data on a worldwide basis — yet still enable the flexibility to meet local office needs.

The before scenario:

The various manufacturing locations around the world operated very much as individual companies. Applications, data, and data formats were customized as needed. Additional components and processes had been added to the local host systems to accommodate local requirements. Modifying the system to network with the new ERP system would be difficult, time consuming and expensive, and would require not only networking expertise, but also major changes in a number of existing business processes.

Solution

Automated real-time capture of inventory data through a set of standardized mobile forms

The after scenario:

A broad systems approach enabled the design of a set of global data templates that delivered the best of both worlds: standardized data that is easily collected and integrated into a single database for a worldwide view of inventory, yet flexible enough to allow customization of processes at the local level. In addition, mobile forms running on handheld computers replaced paper-based processes, with the data collected instantly uploaded to the local business information system via a wireless LAN. Data was then easily transmitted to the corporate ERP system, providing the company with a real time view of global inventory across all business locations.

Benefits

This enterprise mobility solution provides a number of benefits for this worldwide manufacturer:

- **12 percent reduction in stock.** Worldwide visibility into stock levels enabled the corporation to reduce overall stock levels by 12 percent.
- **15 percent increased inventory turns/reduction in the cash-to-cash cycle.** The inventory reduction increased the number of inventory turns by 15 percent, and delivered a significant decrease in the cash-to-cash cycle.

- **25 percent increase in employee productivity.** The use of a mobile computer to automate data capture, combined with the ability to move the data in real time over a wireless LAN eliminated time spent walking back and forth to desktop computers and re-keying data written with pen and paper.
- **9 percent increase in overall profitability.** The reduction in manufacturing time, staff costs, inventory costs and the cash-to-cash cycle delivered a generous increase to the company's bottom line.

Summary

Enterprise mobility is the missing link between your real-time operations and your business information systems. It allows you to effectively drive the costs of people, assets and materials down — and profitability up. In addition, with enterprise mobility solutions, the real-time capture and integration of data combines with the instant availability of information to critical business information systems, providing a level of visibility that is not possible with stand-alone applications. It is this real-time information that provides the rationale for strategic business decisions that boost productivity and slash costs across the board, increasing overall profitability. Enterprise mobility can help you make the most of your IT investment dollars. This profile shows how a large food and beverage manufacturer realized the incremental benefits by implementing an enterprise mobility platform to extend mobile applications in six key business areas: materials management, production, asset maintenance, quality, CRM and mobile management. The company achieved the projected increase in productivity and savings from the planned implementation of the stand-alone "silo" applications — as well as a dramatic incremental savings on an annual basis, resulting from the integration of the applications, and the ability to capture and move the data to the point of most impact in real time.

Incremental Benefits of Enterprise Mobility

When real-time data is integrated with the company's business intelligence system (such as the warehouse management system/WMS and the manufacturing execution system/MES), the data is immediately available, delivering:

- Real-time inventory visibility, enabling a reduction in stocking inventory requirements — and associated costs

- An increase in asset utilization — which reduced line downtime and associated costs
- An increase in yields and a reduction in scrap (enabled by Real-time Key Performance Indicators (KPIs)) — ultimately increasing profitability

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The Power of Enterprise Mobility in CPG/Food & Beverage

Company Profile

Company Revenue	\$10 billion
Number of Employees	30,000
Annual Profit	\$1 billion

New Enterprise Mobility Solutions

Material management	Production
Asset maintenance	Quality
Industrial CRM	Mobile Manager

The Silo Effect on Profitability

The numbers below demonstrate the benefits of enterprise mobility solutions as ‘silo’ applications:

Bottom line increase	\$156 million
% bottom line increase	15.66%
ROI in years	.68

The Enterprise Mobility Effect on Profitability

The numbers below demonstrate the benefits of the enterprise mobility systems approach:

Bottom line increase	\$219 million
% bottom line increase	21.96%
ROI in years	.48

Enterprise Mobility: Incremental Financial Benefits

Additional profitability	\$63 million
Decrease in ROI time	29%

P R O F I L E

About Symbol Technologies

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