Mobility Matters: Improve Regulatory Compliance, Inventory and Invoice Management in CPG/F&B
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 (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.
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.

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

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
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
terprise resource
nning 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. The profile on the following page 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.

Motorola, your enterprise mobility partner
When mobility matters, companies all around the world turn to Motorola. A majority of the Fortune 500 companies use Motorola enterprise mobility solutions every day to streamline processes and maintain a competitive edge. Well respected for deep vertical market expertise, Motorola is the chosen enterprise mobility partner for major corporations in the retail, healthcare, manufacturing, travel and transportation, wholesale distribution, and government sectors. Motorola mobility solutions can help improve productivity, drive working capital back into your business and help good manufacturers become great manufacturers.

For more information on how Motorola can help your enterprise benefit from enterprise mobility, please contact us at 1-866-416-8593 or +1.631.738.2400, or visit us on the web at: www.symbol.com/manufacturing

Enterprise mobility solutions are the sum of technology, applications, and processes that allow a business to reap all the rewards of converged data and business systems, by integrating them with a highly mobile work force. Enterprise mobility extends access to the information that mobile workers need — when and where they need it, delivering productivity improvements across the organization from the warehouse to the shop floor and on through the delivery process to the customer.