

a network of independent distributors to deliver their products over 2,300 routes. The distributors deliver directly to supermarkets and retail locations. Mission used an antiquated paper-based, batch methodology to manage its route delivery operations. Some of their distributors communicated invoicing and receipt acknowledgement information to Mission via modems. The remainder of the invoices was processed through the original hard copies, which required scanning for processing. On any given day, Mission could process about 30,000 documents nationwide. These processes were inefficient and labor intensive, extending the time to process invoices accurately by the company's information systems.

A 2010 survey completed by ARC Advisory Group determined that the top four mobile technologies used for supply chain management are smartphones, handheld computers, cellular networks, and mobile bar code scanners. Mission's management believed that the technology advancements in networking and mobile computers could help end the inefficient picking and packing processes. Their analysis determined that a device was needed that would be able to enter and store information and be able to transmit information using a variety of methods:

- Wide area wireless connection in the field
- Wireless 802.11b standard within Mission's facilities
- Bluetooth capabilities at a customer site

Mission was able to procure one hardware unit that was capable of the three communication methods. The distributor can gain a customer's signature on the handheld device in real time when the product is accepted. At this point, the invoicing data is immediately transmitted and processed by Mission's information systems over AT&T's cellular network. As always, network connections can be disrupted. However, if the network is unavailable at the time of delivery, the system will store the information on the handheld and attempt to resend the data. Any transactions that have not been sent during the day will be transmitted when the distributor returns to Mission's distribution center through their wireless LAN.

Several years later, the success of this initiative led Mission to look inside its warehouses to gain additional efficiency using handheld devices. Their warehouse activities still used paper order picking lists to gather full cartons of a product and place them onto a delivery pallet. Their current system created two problems: incorrectly picked products and improper selection of recently manufactured products before older products.

With the first problem, the incorrect product is shipped. With the second, employees selected boxes that did not have the oldest expiration date, which caused the company to scrap expired products.

Mission's solution consisted of implementing special handheld devices capable of scanning barcodes directly from the product cartons. The devices included special terminal emulation software that mimicked the data entry terminals used by Mission's information system. As an employee scanned the pick location and the product in the warehouse, the system would ensure that the accurate product and quantity was being selected. Any discrepancies would be immediately communicated to the warehouse employee.

Source: Napolitano, M. (2011). Mission foods' wireless evolution. *Logistics Management* (2002), 50(4), 46–48, 50.

Thinking About the Case

1. Is there any benefit for Mission to deploy this technology for its independent distributors? For the consumer?
2. What types of handheld devices could be used today for a system like this? Compile some research on the hardware solutions for a similar product.
3. Why would it be important for Mission to know that a customer acknowledged the receipt of products delivered from the independent distributors?
4. These information technology initiatives required capital investments by Mission for the hardware, software, and networking costs. What would you expect the benefits to be gained by Mission? What cost savings and other benefits would be needed to justify the investment?