

CASE EXAMPLE

BMW

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BMW builds more than one million vehicles a year in Germany and the United States. It opened a facility in South Carolina, and more than 30 suppliers have built facilities nearby to work with BMW. When this plant was slated to take on the manufacture of the company's sport-utility vehicle, BMW wanted to implement the new assembly line quickly, which meant helping its suppliers scale up quickly as well.

Real-time delivery of data to the suppliers was one key to moving quickly. Suppliers needed accurate inventory data on the components they were supplying to BMW so that they knew when to make just-in-time deliveries to the plant. BMW uses SAP's ERP system to track parts inventory. To gather the inventory data that needed to be fed into the ERP, BMW decided to place bar codes on each part. The bar codes could then be scanned as the parts moved through the assembly process so that BMW's planners, operations personnel, and suppliers would know the current status of all parts.

Originally, BMW used Intermec bar code scanners attached to hardwired data terminals at different locations on the plant floor. But more recently, it upgraded to Intermec's wireless scanning system. The scanner terminals transmit the data from the bar code readers to the SAP ERP via a wireless network that covers the entire 2-million-square-foot plant. The system uses radio frequency (RF) technology. The move to wireless allows BMW to more quickly reconfigure or expand the data-collection system. Stations are simply moved; they do not need to be rewired.

A number of BMW's suppliers have followed suit and have implemented wireless data-collection networks in their operations. As a result, the supply chain—from supplier to supplier warehouse to BMW's production line to shipment to a dealer—is supported by a flow of data that travels over interconnected wireless and wired networks. ■

WMANs

For distances of 10 to 30 miles, three wireline technologies have been used for local-loop connections and access to cable networks: T-1, cable modem, and DSL.

The wireless equivalent to these wireline technologies is 802.16, which can deliver speeds of 5 to 10 Mbps over these distances. The stationary version is called WiMax (Worldwide Interoperability for Microwave Access). Like Wi-Fi, WiMax creates a hot spot around its radio antenna. It is perfect for aggregating 802.11 hot spots, notes Dzubeck, giving them access to a long-distance carrier network. Proprietary broadband microwave transmission capabilities have been around for years, notes Green, connecting