Automobile manufacturers and logistics companies have been using transponders for quite some time. Pilot studies show that these small chip-based labels are set to make inroads into our daily lives and will soon begin to compete with bar codes. Indeed, the advantages of transponders are so great that experts agree this technology has a great future. Unlike bar codes, transponders are both readable and writable without any line-of-sight contact, and they function even when they are dirty or have suffered surface scratches. Using transponders, containers, luggage and even letters can be tagged and then registered in a fraction of a second. The technology is known as Radio Frequency Identification — RFID.

The major obstacle in the path of large-scale application of RFIDs in retail environment is price. However, costs are falling — so much so, in fact, that one day mass applications will become a viable option.

Transponders, which use radio technology, can simplify supply logistics by enabling retailers to track goods all the way from delivery to the checkout counter. Here, the radio antenna is clearly visible on the label.

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**Transponders in Department Stores.** A recently completed pilot project conducted by Siemens Business Services and German retailer Kaufhof involved the use of some 20,000 transponders to label clothing. Kaufhof was interested to see if the new technology would help accelerate and simplify its transportation logistics as well as reduce the loss of goods. Siemens Automation and Drives provided the read/write units used to transmit and retrieve information to and from the transponders. The units were installed in a major warehouse to record incoming and outgoing goods and in a Kaufhof department store, where they were mounted at check counters. This meant goods could be tracked over the entire logistics chain. In the store itself, employees equipped with mobile reader units were able to check on stock levels within seconds, while reader units mounted on the shelves provided a digital overview of inventory.

**Intelligent Toolbox.** Transponder technology is currently undergoing testing in many sectors and has many potential fields of application. For example, researchers from the Auto ID Center at the Massachusetts Institute of Technology (MIT) are investigating which transponder applications are truly viable and can be realized at acceptable costs. To this end, various pilot projects have been launched with a number of companies. An aircraft manufacturer, for example, has helped develop an “intelligent toolbox” that facilitates jet maintenance. The toolbox notices if one of the tools, each of which has been equipped with a transponder, is missing. By sounding an alarm at the end of the shift, the toolbox eliminates the risk of the tool being left behind in a critical part of the aircraft. In a move to help accelerate the development of transponder applications, Siemens is also involved in activities at the Auto ID Center. In addition, Siemens is a member of various committees at the German Association of Engineers (VDI) and the German Automobile Industry Association (VDA), which plan to advance the application and standardization of RFID technology.