

## An introduction to silent commerce: Creating new sources of value from intelligent objects

by Terry Adams, Glover Ferguson and Joseph F. Tobolski

Imagine that your products, your inventory or any of your physical assets could sense the characteristics of their environment, know their location and tell you about it.

Imagine that you could sit at your desk and instantly take inventory at the warehouse. Imagine if you could identify and track every product as it moves along your value chain, from the factory all the way to the consumer.

Imagine that you could provide in the field, real-time product authentication to help prevent counterfeiting and reduce theft. Imagine that your products could interact with your customers.

In fact, these are not idle workings of the imagination but the real capabilities of the business and technology solutions Accenture calls "silent commerce."

### What is silent commerce?

Silent commerce uses advanced tagging and sensor technologies, as well as wireless mobile communications, to make everyday objects intelligent and interactive, creating new information and value streams. It is "silent" in that objects can communicate and commerce can take place without human interaction.

Silent commerce is a key component of Accenture's broader business and technology vision of ubiquitous commerce or u-commerce: the continuous, seamless stream of communications, content and services—informational, transactional, entertainment, financial—exchanged among businesses, as well as among their customers, suppliers and products.

### How does silent commerce work?

Some know silent commerce better by its enabling technologies, such as radio frequency identification (RFID). In an RFID system, a product is equipped with a very small and inexpensive tag with an embedded digital memory chip the size of a pinhead. The tag is easier to scan than a bar code, and the information on the tag can be changed as the product moves down the value chain.

At first a chip on a product might contain basic information, such as the date the product was created. Later, during shipping, anti-counterfeiting information can be added to the chip. Finally, when the product arrives at the store, the retailer can add pricing and product information.

Other technologies can be combined with the RFID chip to provide an extraordinary range of silent commerce services. Small microsensors that monitor the environment around them are currently being tested. Want to make sure the fish is fresh, the beer has never been warmed or the equipment has not been exposed to moisture? Scan the chip and the sensors will tell you what the product has been exposed to at any place along the value chain. Or, using new display technologies such as electronic ink, manufacturers can dynamically change the text or writing on the package to provide useful safety and quality information about the product.

### Coming soon: The "object Internet"

An object Internet, whereby objects, not merely computers, are inter-networked and can be accessed and addressed from anywhere in the world, is emerging. This potentially revolutionary development consists of an electronic product code, which replaces the bar code or Universal Product Code (UPC); an object naming service, similar to the Internet's domain naming service, which assigns unique URLs to websites; and a physical markup language, similar to the Internet's HTML, to describe objects.

Because current tagging technology offers what is, in effect, an unlimited number of combinations of unique IDs, every object in the world could be given its own ID. In the coming years, sensors will become cheap and ubiquitous, with some types as small as dust motes. Combining those capabilities with the object Internet will enable users to track and monitor objects from anywhere in the world.

### Today's leading silent commerce applications

Companies today are already creating a wealth of silent commerce applications in the areas of customer insight and operations management.

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- A consumer products company is piloting a smart packaging program in which chips are embedded into each product and RFID readers are built into the retailer's shelf. The result is that the company can identify and locate every item on the shelf. The chip provides real-time data on inventory, merchandising and consumer interactions.  
For example, it can record when customers pick up a product and if they put it back. Much the way a cookie tracks users' website activities, smart shelves can record customer interaction with merchandise. Theoretically, this will allow the company to rapidly adjust manufacturing in response to actual consumer demand rather than mere forecasts.
- A Czech clothing manufacturer uses tagging technology to track items throughout its distribution process and at the point of sale. Smart labels attached to the clothing contain data that can be updated as items move through the supply chain. The labels are water-resistant and can withstand extreme temperatures and pressures.
- A company in the United Kingdom runs a warehouse that stores expensive single malt whiskies, which are subject to theft. A new security system consists of a grid of transponders suspended from the ceiling. In the warehouse, forklifts are equipped with RFID readers. Routing details are downloaded to the forklift from a central computer via a radio frequency communication link. If the onboard reader detects deviations from the proper routing and loading, the truck is immobilized and a supervisor is required to reset the vehicle.

### Silent commerce tomorrow

At Accenture Technology Labs,\* researchers have developed several prototypes of silent commerce applications that could become commonplace over the next few years.

For example, with the Real-World Showroom, consumers have immediate access to a wireless, always-on shopping channel. The showroom is, quite literally, the everyday world. If someone walking down the street sees something they like—say, an article of clothing on a passerby—they can immediately take action.

How? The Real-World Showroom responds to RFID tags embedded in the item. By pointing a PDA—one with a permanent wireless connection to the Internet—at the item, it can be called up on the screen. Users can instantly find out more about the item and even purchase it.

Accenture's Wearable Services Platform prototype offers the promise of enabling shipping companies to guarantee that a

package will arrive on time. The platform integrates the latest advances in wireless networks with "wearable" computers, allowing the user to communicate with a company's home base server anywhere, anytime. For example, a Heads-Up Display—customized glasses incorporating a text-relay screen and two-way audio channel—enables drivers to communicate with the home base without stopping to send or receive information. This means packages with embedded RFID tags can be monitored at every point of transit.

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Silent commerce will provide a level of customer insight never before available, along with the ability to better manage programs derived from that insight. Silent commerce will help companies understand interactions with their products not just at the point of sale but also afterward, at various decision points. In fact, the potential of silent commerce to improve operations management is already being realized by forward-thinking companies.

If you found this *Outlook Point of View* to be of interest, you might also be interested in "Getting value from silent commerce today." To order an electronic copy, send a request with your e-mail address and the article's name to [pointofview@accenture.com](mailto:pointofview@accenture.com).

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\*Accenture Technology Labs, the technology R&D organization within Accenture, researches, invents and commercializes the next wave of business solutions using new and emerging technologies. Accenture Technology Labs are located in Northbrook, Illinois; Palo Alto, California; and Sophia Antipolis, France.