

# Machines will talk to each other in next wireless phase

## Cars, appliances in technology upgrade

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BARCELONA, Spain — A car that tells your insurance company how you're driving. A bathroom scale that lets you chart your weight on the Web. And a meter that warns your air-conditioner when electricity gets more expensive.

Welcome to the next phase of the wireless revolution.

The first wave of wireless was all about getting people to talk to each other on cell phones. The second will be getting things to talk to each other, with no humans in between. So-called machine-to-machine communication is getting a lot of buzz at this year's wireless trade show. Some experts say these connections will outgrow the traditional phone business in less than a decade.

"I see a whole set of industries, from energy to cars to health to logistics and transportation, being totally redesigned," said Vittorio Colao, the CEO of Vodafone Group, in a keynote speech at the Mobile World Congress in Barcelona, Spain. The British cell phone company has vast international interests, including its 45% ownership stake in Verizon Wireless.

Companies are promising that machine-to-machine, or M2M, technology will deliver all manner of services. At U.S. chipmaker Qualcomm's booth at the show, there's a coffee pot that can be ordered to start



JOSEP LAGO/AFP/GETTY IMAGES

Visitors test Sony products at the Mobile World Congress wireless industry trade show in Barcelona, Spain, on Wednesday.

brewing from a tablet computer, or an Internet-connected alarm clock. A former president of Costa Rica is also at the show, talking about how M2M can save massive amounts of greenhouse gases by making energy use more efficient — enough to bring mankind halfway to the goal of halting global warming.

The M2M phenomenon is part of the larger drive to create an "Internet of Things" — a global network that not only links computers, tablets and phones but that connects everything from bikes to washing machines to thermostats. Machina Research, a British firm, says there will be 12.5 billion "smart" connected devices, excluding phones, PCs and tablets, in the world in 2020, up from 1.3 billion today.

But how does this transformation happen, and who stands to profit?

First, the devices have to be able to connect. That's not a triv-

ial undertaking, especially considering that people don't upgrade washing machines or renovate their homes as often as they change cell phones and PCs. One company at the show, a Los Angeles-based start-up named Tethercell, has an ingenious solution for battery-powered devices: a "fake" AA battery that houses a smaller AAA battery in an electronic jacket. It can be placed in a battery compartment with other batteries. Within a distance of 80 feet, some smartphones and tablets can then signal the "battery" to turn the device on or off. For instance, parents whose kids have a lot of noisy toys can turn all of them off with touch of a single button. A fire alarm could send a text-message warning that its battery is running low, rather than blaring an audio signal.

Unfortunately, a Tethercell from the first production run costs \$35. Cofounder Kellan O'Connor says the price can

come down to \$10, but that's still a non-trivial cost, and symptomatic of the high price of building out the Internet of Things. For devices that need to connect at long range over a cellular network, the cost of radio components alone ranges from \$10 to \$70, according to analyst Dan Shey of ABI Research.

That's not expensive in the context of some big-ticket items, like cars, which have been forerunners when it comes to non-phone wireless connections. General Motors started equipping cars with OnStar wireless calling and assistance services in the mid-1990s. At the show, it announced it is updating the service for faster data connections, enabling services like remote engine diagnostics and upgrades to the control software. AT&T, which has been aggressive about getting into the M2M business, is ousting Verizon Wireless as the network provider for OnStar.

Colao, the CEO of Vodafone, gave an example of another "smart" car application that might seem intrusive to some: The company has been trying out a service in Italy that lets an auto insurance company know how much a car is being used, and charges premiums accordingly. It can also score the driver based on his or her driving style, and give pointers on how to handle the car more safely.

Could M2M be overhyped — a promise that won't deliver? The wireless industry is no stranger to rosy projections that don't pan out. Shey, the ABI analyst, says M2M will deliver, but perhaps not in a sexy, flashy way.