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**GADGETS**

## Cellphones Become 'Swiss Army Knives' As Technology Blurs

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Not so long ago, phones were the domain of the telephone company. Now, they're becoming an integral part of an expanding array of consumer goods, from videogame machines and music players to things such as ski apparel and motorcycle helmets.

The arrival of communications as a hot consumer application will be on full display this week at the Consumer Electronics Show in Las Vegas. Typically, the annual confab is where makers of televisions, computers, DVD players and other electronics gear strut their stuff. But this time around it will showcase how the cellphone is fast becoming the Swiss Army knife of consumer products.

Outside the main exhibit hall, one of the largest cellphone makers, **Motorola Inc.**, is erecting a 60-foot-high structure called "MotoMountain," featuring real snow and snowboarders. The display will highlight a new Motorola product built with Burton Snowboards: a ski jacket with wireless speakers and a microphone built into the hood, allowing boarders to ski and chat at the same time.

Motorola also has outfitted a motorcycle helmet with a cellphone headset. Bruce Hawver, who heads what Motorola calls its companion products division, says the idea came from seeing a motorcyclist in a rainstorm in Britain, who had stopped at the side of the road to take a call. "He was getting drenched," Mr. Hawver says. The product, made in conjunction with the Italian helmet company Momo Design, will be available in Europe in the first half of this year.

"We are going out in the environment and seeing where people are and where they want to be accessible," Mr. Hawver says. "We are developing a line of products to make that become reality."

Cellphones have become ubiquitous in the U.S. and many other countries. But what has generated excitement in the past 12 to 18 months is the growth and potential of non-voice functions on cellphones, industry executives say. Last year, for the first time, sales of camera-equipped phones exceeded sales of digital cameras themselves. "That was huge," says Jon Maron, head of U.S. marketing for LG Electronics Inc. of South Korea.

Still, obstacles remain for the cellphone to become the universal device that many have predicted for years. Chief among them is finding the right mix of applications that consumers want and that will become profitable. In this regard, more industry consolidation, such as the recently announced merger between **Sprint Corp.** and **Nextel Communications Inc.**, is needed to create the necessary economies of scale for the industry to develop even more advanced applications, says Raul Katz, chief executive officer of Adventis Corp., a Boston-based telecom consulting firm.

"The key issue is adoption and achieving critical mass," says Mr. Katz. "I say, 'Who the hell wants a camera on a phone,' but then I see my daughter using it, which gets me using it."

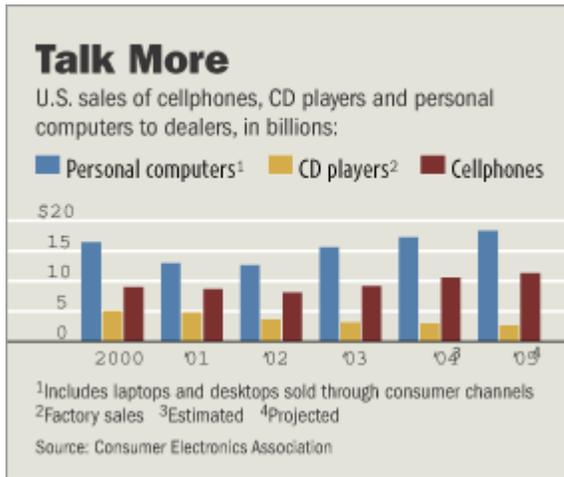
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Cellphones have a decisive advantage over many other electronics devices: People typically carry them wherever they go, unlike laptop computers, MP3 players or digital cameras. As a result, cellphones have become products on which all sorts of industries want to attach their wares and services. "Cellphones have become lifestyle devices, rather than just things you carry on your hip to make phone calls," says Mr. Maron.

For example, one of LG's 14 new phones on display at the Las Vegas event will be its high-end VX8000, which comes equipped with a 1.3-megapixel camera, zoom lens, video player and MP3 music player, among other features. LG, which also makes devices such as flat-panel televisions, plans to devote a third of its booth at the Consumer Electronics Association show this year to its new handsets. In past years the company displayed no cellphones at the event, reserving them for conferences devoted to telecom, says Mr. Maron.



Cellphone makers like **Nokia Corp.** of Finland and Motorola, of Schaumburg, Ill., also plan to showcase their latest models -- also loaded with cameras, music players, e-mail capabilities and other non-voice accessories.

Several factors are making such ideas reality -- and stoking enthusiasm about what will come next. For one thing, cellphone network coverage has improved, even in rural areas, to the extent that building cellphone headsets into ski jackets and motorcycle helmets has become attractive. The second factor is new technology such as a short-distance wireless system called Bluetooth, which enables cellphone users to don headphones that connect to their phones without cords. Third, better digital networks and improvements in the software inside cellphones

have made the phones much more powerful and capable of handling an assortment of accessories. And finally, prices are coming down, turning the latest high-end features into mass-market offerings within months.

The expected rollout of so-called third-generation networks and phones over the next one to two years in the U.S. should further expand the capabilities of phones. South Korea, one of the Asian countries where cellphone technology is more advanced than in the U.S., provides a possible window on the U.S. cellphone future. South Koreans for several years have used their phones to remotely and wirelessly control home appliances, such as air conditioning, lights and garage doors. That should come to the U.S. within the next couple of years, executives predict, with the rollout of third-generation technology. Another feature already available in South Korea is the ability to watch television on the phones' screens.

Then there are medical applications that could be even more important to some consumers. In South Korea, for instance, phones have been modified to allow diabetics to check their blood-sugar levels, and the data can be sent by the phone network to a physician. Experts say other vital signs such as heart rate could be monitored remotely by doctors as well.

"All of a sudden, this device is becoming really important in how you run your life," says Mr. Maron of LG.

Some of these visions likely will not take off. Mr. Katz of Adventis doubts that cellphone users will really want to watch live television or movies on their cellphones, given the small size of their screens. What is more likely, he says, is that consumers would watch short video clips, containing music videos or highlights from sporting events. Video conferencing on cellphones may also prove popular, he adds.

Sprint already sells video phones, but users have complained of choppy images because of the inconsistent speeds of the wireless network. That is slowly changing with the arrival of a third-generation technology called EVDO that Sprint and Verizon Wireless are introducing nationwide. Verizon Wireless is a joint venture of **Verizon Communications** and **Vodafone Group PLC** of the U.K.

Some devices, such as the BlackBerry and Treo, already have proved successful by combining phoning and e-mail. The next level of convergence, such as combining music, cameras and phoning in a meaningful way, requires much more data storage than most cellphones contain today. These functions may require the

incorporation of hard drives in cellphones, such as used by **Apple Computer** Inc.'s iPod to store songs -- furthering their evolution from a phone to a computer and then to something entirely new. As cellphones increase their data-storage capacity, analysts say that their cameras and other functions will continue to improve.

One result of all the change is that companies that had nothing to do with telecom, such as computer-game makers, are getting into communications.

A video game called SOCOM: U.S. Navy SEALs, which runs on **Sony** Corp.'s Playstation 2 videogame machine, allows a user on a dangerous mission to communicate with other members of his team. The online version of the game runs over a broadband connection using technology called voice over Internet protocol, or VOIP. That allows players located anywhere in the world to talk live as they virtually perform their underwater mission.

"More and more these traditional barriers are blurring," says Charles Golvin, an analyst with Forrester Research in San Francisco. "As new products and applications get developed, you have companies that previously didn't think about things like entertainment helping consumers find ways to entertain themselves."

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