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Cover Story

Mobile. Wireless. Simple?

Is "easy to use" easy enough? By Arielle Emmett

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EV-DO data speeds. Color displays. Qwerty keyboards. GPS. Push-to-talk. Enterprise apps. Multimodal interfaces. Wi-Fi ubiquity. Secure VPNs. If wireless devices have come such a long way, why are analysts knitting their brows?

Alan Nogee, a principal analyst at In-Stat, based in Scottsdale, Ariz., says that mobile ease of use is still sought after but surprisingly elusive. “I haven’t seen a lot of progress in [many] areas, although in Asia there is a movement toward simplified handsets,” he says.

In Japan, carrier KDDI now sells Kyocera handsets with big buttons and color displays to help children and older consumers handle simple, no-frills wireless voice calls with long talk times. Exemplifying this back-to-basics approach, Kyocera’s newly released Simple Phone acknowledges the problem of myopia and changing Japanese demographics. “On average, mobile consumers in Japan are getting older, and younger people make up a smaller percentage of the whole population,” Nogee explains.

Worldwide, carriers and handset manufacturers are also producing phones with a “swing of the pendulum” accent on simple features and usability. For example, Sony Ericsson’s entry level J-100 wireless handset offers voice calling and SMS text messages only. The dual-band GSM device has a large keypad, one-click navigation, single-icon menus and a long battery life (up to 300 hours of standby and eight hours of talk time).

On the other end of the spectrum, the RIM BlackBerry 7130e looks simple, but isn’t. The enterprise-level wireless phone will support 1xEV-DO networks with download speeds of 400 to 700 Kbps. Featuring the “ergo-friendly” BlackBerry feature set of track wheel, qwerty keyboard, polyphonic ringtones, large, iconic color display and instant accessibility to “push” wireless e-mail and the Web, the 7130e earned a slot as a high-end voice/data phone on Verizon Wireless’ NationalAccess 1xRTT network and BroadbandAccess EV-DO network. The combination of rich feature sets and ease of use distinguishes BlackBerry from its competitors, according to Ellen Daley, a VP and research director at Forrester Research. “I think the BlackBerry is a great example of … fantastic usability,” she observed, citing the BlackBerry’s long battery life, one-handed operation and qwerty keyboard. Although the industry is focusing more on usability than in the past, she admits, “There is a long way to go.”

Daley believes wireless convergence has actually produced divergence in mobile devices—a multiplicity of forms and functions. “We see lots of different device types in the market,” she affirms. Divergence recognizes that “mobile devices are personal and require various personal [feature sets]. Because the devices are varied, they are indirectly addressing the nuances and personal nature of usability.” On the device side, she adds, input basically consists of two types of methods: keyboard and touchscreen, which have limited usability. Moreover, the basic input technologies are not likely to change within the next two years, Daley contends. In terms of talk time and battery life, “RIM has the right idea,” she explained, “but battery life is still a huge issue.” And the industry is addressing it.

Glass Half Full?

Historically, wireless Internet and the ability to integrate corporate data and applications on the fly have presented key usability issues. As early as 2002, the Hastings Research Institute

tested the usability of multiple mobile devices and came up short. Although the pioneering tests on 25 users (both IT professionals and consumers) came early in the wireless data game, Hastings did attempt to provide objective, albeit qualitative, assessments of 10 wireless services, six portals and 23 different devices of the time. The tests revealed wide discrepancies in quality and connectivity among cellular phones, BlackBerrys, Palms, Handsprings and handheld PCs (the HP Jornada and Compaq iPAQ).

Among Hastings' most important findings were ergonomic considerations. The Institute found that Web-enabled cell phones did connect, but users grumbled about speeds and inconvenience, including 2,400bps downloading. Mobile computers such as the HP Jornada and Compaq iPAQ connected only sporadically to the Web during the tests. "Contrary to previous reports by other research companies, we found that wireless devices themselves were far from perfected," the report concluded. Although certain devices and applications (i.e., the RIM BlackBerry and its e-mail system) were extremely successful, the report emphasized that mobile users would be unwilling to multitask with wireless Web devices replete with "illogical controls and poor ergonomics." The observation holds true today: Human factors, small screens and big Web access, strength of signal, ease of "hopping" onto networks away from home, bandwidth availability, enterprise integration and security are still hurdles to ubiquitous wireless data usage.

Despite the fact that wireless data is expected to create a market topping $22 billion this year in North America, Western Europe and Asia/Pacific, according to Strategy Analytics, adoption is skewed toward certain demographic groups and practices (e.g., power road warriors and people under 25 years of age who game and IM). In Japan, for example, where 3G networks are readily available, wireless Internet usage is high. In North America, the killer app remains e-mail and messaging, according to Strategy Analytics. While mobile enterprise apps will expand in coming years—sales or field force automation and wireless enterprise resource planning are examples—the mobile handset remains a barrier to generalized data usage. In the United States, casual SMS continues to dominate contemporary users and revenues. Among consumers, demand will be strongest in coming years for easy-to-use camera phone MMS services, as well as SMS instant messaging and PIM services.

Multiple Formulas for Success

Will vendors live up to the challenge? The answers are complex. Wireless usability must be approached at many levels—from device hardware and operating systems to applications, networks and user costs. The very technologies that breed choice may also reduce the chances for ubiquitous networking standards—Wi-Fi vs. WiMAX vs. CDMA2000, for example. At the same time, the melee of offerings has increased user acceptance, generating vast appetites for wireless services. For example, BlackBerry e-mail users in North America count themselves among the world's most addicted, even when a patent suit threatened to potentially shut down the BlackBerry e-mail network. In Japan, wireless gaming and instant messaging are national pastimes; in North America, music downloads and e-mail are de rigueur.

"The wireless world is becoming complicated," said David Sym-Smith, a senior VP of marketing and business development for Innopath of Sunnyvale, Calif. "Carriers are looking for solutions to manage the lifecycle of a mobile device [while] customers are looking for a way to go off and running with a new application that makes for a positive experience."
Innopath's solution to the ease-of-use question is to devise a carrier and handheld device suite known as IMDM (integration mobile device management). The suite streamlines over-the-air activation, providing software and firmware updates for users. "You can think of [the suite] as middleware to help carriers manage their devices—mostly cell phones, smartphones and PDAs," said Sym-Smith. The top three U.S. and Japanese carriers have adopted the IMDM suite, he adds, and over-the-air updates and diagnostics are fast becoming the standard method carriers use to resolve most configuration problems.

In the laptop arena, mobile data is benefiting from the newly embedded technologies—chipsets and RF antennas—according to Kristin Taylor, Qualcomm's senior director of enterprise business development. "We're seeing a move away from peripherals and an integration of chips and plastic inside the machine." By integrating peripherals into one unit, enterprises that don't have to track multiple assets.

Qualcomm is embedding RF and antenna technologies in the leading laptops produced by Lenovo, HP and Dell. "We're commercializing products for the EV-DO and [High Speed Downlink Packet Access, or HSDPA] networks," both of which are 3.5G successors to CDMA2000 and WCDMA, respectively," says Taylor. "[Embedding] is more appealing for users who manage one asset and can access the Internet simply by turning on their machine and getting integrated broadband."

Network accessibility on the move has generated new challenges for enterprises, explained

Skip Taylor, a VP of product marketing at Fiberlink (in Blue Bell, Pa.), a company specializing in Wi-Fi and wide-area (CDMA2000) wireless solutions. “Connectivity was once about dial-up, where everyone would build a simple client. But now that we’re seeing so many different ways of accessing the network—CDMA2000, EV-DO, broadband, home networking, Wi-Fi, etc. Every time I connect, I have a different way of doing it,” he said. Too many options breed confusion for IT managers and users—along with password and access amnesia, he adds. Fiberlink’s answer is a piece of software known as Extend360, an intelligent access client for enterprises that provide a simplified way for corporate users to detect available network access options (i.e., Wi-Fi hotspots, CDMA2000, cable, etc.) and secure a connection. A self-monitoring function provides access awareness and connectivity; the program walks users through a secured VPN to the Internet or desired corporate site, following enterprise IT policies for access and cost management. “This makes it easier for enterprise users to get connected, to enter sign-on information [and get connected] around the world,” including hotels and coffee shops in Asia, Europe and South America, he continued. Cost management features allow IT managers to monitor usage.

“I’ve been hacked in a Tokyo hotel,” Taylor explains. “But because we’re monitoring these kinds of attacks, we can block them. And we provide the same security regardless of how users get their connectivity.”

The industry offers many other approaches to usability. Clarity Communication Systems (of Aurora, Ill.) develops mobile VoIP applications such as push-to-talk (PTT), as well as GPS location-based services for handsets. “We’ve been creating packages of services to help track employees, children and to leave a breadcrumb trail of where they’ve been,” said Bill Jenkins, a VP of product management at Clarity. “Right now one of our applications is employed on [Sprint] Nextel, and we’re looking to roll out in Asia.” A GPS chip on a wireless phone will leverage both satellite and cellular to provide tracking through reference points (both base stations and satellites, depending on line of sight correlations), Jenkins added. VeriSign has signed Clarity’s PTT services, and will be delivering them to carriers wishing to compete with enterprise-level PTT offerings. Eloqui Wireless in Tennessee, a CDMA carrier, is already using Clarity’s VoIP PTT services on its packet network over CDMA; Clarity expects that GPS integrated with PTT services will become more commonly deployed.

Full Access to Enterprise Data

Scott Thompson, president and CEO of Business Intelligence, in Portland, Ore., believes the key to enterprise-level wireless is a better system for obtaining corporate data and apps. His company designs interfaces that integrate with enterprise servers and data. “What our interface does is allow your average end user to get access to data in a matter of minutes. We allow for the full record set, and if someone pulls data back into a report, he can actually disconnect from the network and get the report on the laptop live,” Thompson said. “Users can create reports on the record set, change the report by region, slice and dice the data on the laptop, and even when they’re at 30,000 feet, they can still look at live views of data without being connected to the [enterprise] system.”

Stanislav “Stan” Miasnikov, the president of Phatware, a Mountainview, Calif., software maker for mobile devices, believes that ergonomic convenience and data synchronization are key issues in IT usability. Although his company was founded in 1997, providing software for Windows CE devices, Miasnikov now focuses on applications involving synchronization of corporate notes and data, as well as handwriting recognition. Phatware’s PhatNotes provides modules for smartphones, Pocket PCs, Palm devices and desktop PCs, supporting the coordination/synchronization of multiple databases and user reminders. The program also provides synchronization of multiple Outlook folders. The company’s program, CalliGrapher 8, provides “smart” handwriting recognition for Pocket PCs, providing on-screen handwriting and integration with the PhatNotes program. The application supports all handwriting styles (cursive, print and mixed) and also offers an easy-to-use PC navigation tool known as PenCommander, which allows users to write and see pen strokes automatically converted into text that is sent to a target application.

“A lot of the software we’re developing is based on customer feedback,” Miasnikov said. “They tell us how they feel it [can be better], and we try to use the software to meet our customer’s needs. In most cases, we find it’s the best way to do it.”

There are many other industry approaches to usability and ease of use: multimodality (voice, touch, talk interfaces), speech-recognition programs, touchscreens, bigger screens, higher-level resolution, color, keypads with a friendlier touch, new access schemes, etc. In essence, though, wireless is about mobility—moving information quickly through time and space with the smallest form factors possible. In that context, the ease of use question remains up for grabs. Vendor efforts to improve usability will reflect user preferences and more attention to human factors. Beyond this, widespread user adoption will force applications to “go friendlier.” And that will be a

benefit to everyone.•

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