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The hands-down winner

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Although PC manufacturers are in the midst of a sales slump, **personal digital assistant (PDA)** developers are singing an entirely different tune as they continue to rapidly turn out units that are quickly gobbled up by enthusiastic consumers. Some market analysts maintain that soon, handheld sales could account for a significant portion of the entire computing market.

Handheld computer manufacturers sold 3.5 million units in 2000, an increase of almost 270 percent from the 1.3 million sold in 1999, according to a study by Port Washington, N.Y.-based NPD Intellect. Those 3.5 million units yielded more than \$1 billion in sales last year, more than twice the \$436.5 million in sales from the previous year. The average price of a handheld dropped from \$324 in 1999 to \$293 in 2000, an indication of the growing popularity of lower-priced models such as Palm Inc.'s m100 and those manufactured by Handspring.

Those within the industry, as well as expert observers, are convinced that this continued sales growth is fueled by the relative affordability and increasing functionality of PDAs. The relentless advance of the wireless Internet--the new frontier of revenue for PDA manufacturers and their application partners--is seen as a key to long-term expansion.

But the only constant in this wild world of mobile personal technology and communication is the small but rapidly growing demand for such products from business and home users. Predicting what lies beyond the horizon in this nascent industry is key to business strategies related to one-handed computing. That's what we will attempt to do in this space.

At this point, PDA manufacturers can do little more than consolidate their gains and develop peripheral products that enhance existing platforms--those that have already proven to be healthy profit centers. "We're still working very hard to maintain the low-end market," says Gavin Bourne, director of business and platform development at Palm. "That not only includes existing products, but possible singularly specialized products, like for the student market. We're not forsaking the higher-end (\$400 to \$600) niche. We still feel there's room for growth in this area, either generally or within more specific areas."

PDA dovetails with wireless

While this goes on, PDA developers also must carefully chart their embryonic partnership with wireless communications. One wrong move in this area could spell disaster, simply because these developers must account for so many different wireless platforms.

"The existence of competing platforms (CDMA, TDMA, and GSM) means that individual devices such as phones can only work with one system," notes Jed Kolko, consumer technology analyst for Forrester Research of Cambridge, Mass. "Hardware developers must choose which platform their phones [and modems] will work on. The wireless PDA side is another issue, as there is yet another standard (CDPD) which is also being used for wireless data transmission."

This view is underscored by Ken Dulaney, vice president of mobile computing and research at Stamford, Conn.-based GartnerGroup: "With the multitude of wireless platforms, I'm wondering what sort of confusion this is causing to the wireless PDA development community. With PDMA and CDMA being the platforms of choice here, and GSM being the one in Europe, providers and tech developers need to do their homework.

"Developers are viewing them all as IP networks," Dulaney says. "However the paths through the different servers with different software versions can cause problems. Roaming is not supported in many cases."

The evolution of PDA relationships can indeed be confusing, with device platform developers scrambling to align themselves with software developers that will enhance their products while working at breakneck speed to make their devices compatible with the largest segment of wireless technologies.

Palm's move to licensing

Palm, the originator of the current incarnation of PDA technology, licenses its operating system to a myriad of software and hardware developers, the most successful to date being electronics giant Sony and Handspring of Mountain View, Calif. Even Palm licensees Nokia and Ericsson are getting into the act, developing products that combine their mobile phones with PDA functionality.

Meanwhile, the Palm nuclear family sees increasing short-term competition to its OS in the form of Microsoft's Pocket PC and the recently unveiled Linux handheld platform. Another challenger is London-based Symbian, a partnership of Ericsson, Motorola, Nokia, and Psion. Symbian's wireless platform is based on the Psion OS, which is very popular in Europe.

But Palm's total market share has not lagged. Rather, it has increased by 10 percent (to 70 percent of the market) since Palm licensed its OS, and some estimate its share at more than 80 percent. Add to that the revenue realized from its licensing efforts, and

today's balance sheet looks pretty good for Palm.

Farther down the road, as wireless PDAs make a greater impact on the marketplace, Microsoft and Symbian are seen as worthy competition, especially if wireless network platforms become more standardized, or if one or both companies are able to align themselves with an emerging, alternative platform to the Palm family.

By 2002, predicts Gartner's Dulaney, "the Palm platform will have about half the market, and Symbian and Microsoft will share another 40 to 45 percent, with Microsoft probably having the larger portion."

Because it's Palm's race to lose, Palm sees its default mission as one of keeping its friends while countering the real competition represented by other platforms. Competition from within is a secondary issue at best. Analysts and company executives maintain there is now (and will be for a while) more than enough demand to support everyone without triggering a shakeout.

"We're watching competing operating systems very carefully," allows Palm's Bourne. "Our strategy has always been to license aggressively but intelligently. We want these licensees to grow, develop new products that have market value, and be happy they're carrying the Palm OS flag."

Gartner's Dulaney wonders how long that policy can continue, especially with licensees rolling out new products that are carefully niched. "The buying public for PDAs is very fickle," he says. "It's like the fashion industry in the sense that the buyer is only interested in 'what have you done for me lately?' Palm and its affiliates have the overwhelming market share. It's easy to be friendly with your siblings when you're winning."

There are two factors that could have an impact on this cozy relationship: the unqualified success of Handspring's warmly received Visor-phone clip-on wireless device that was unveiled just in time for Christmas, and the development of new revenue ventures within Palm itself.

That second item draws Dulaney's attention. "Aside from eWallet, which complements Palm's PDAs, the focus of Palm's business could become diluted by entering the personalized portal market with MyPalm.com [www.palm.net], which is an exclusive service to begin with. History has already proven that exclusive portals have very little future.

"As far as Handspring's continued development of excellent products within the Palm OS, we'll see if they end up being better. If so, it'll be interesting to see if that affects the relationship between the father and the son."

The telling factor could be the mettle of the companies' respective CEOs, Dulaney says. "Jeff Hawkins is Handspring's biggest weapon. He understands market demand and seems to know where it's going. Palm's Carl Yankowski is trying to juggle four different revenue streams. So I guess we'll see what kind of a business guy he is."

Palm's Bourne has a ready answer. "The common denominator is the operating system. It's the foundation technology that is not exclusive of these other initiatives. These other products can help drive the OS. The mission is to create a Palm economy. And the foundation is the OS. All the products that go around it are enabled by the viability of the OS."

PDA market not yet golden

Low-end technology continues to generate large amounts of cash for all the major PDA players, yet total market penetration remains low.

"Overall, [market penetration is] probably not much more than maybe 15 percent," says Forrester's Kolko. "There's still a lot of unmet demand for this technology, primarily from students, housewives, and sales professionals who want to manage information, but who still don't see the need for online access with their PDAs. In fact, we're beginning to detect the emergence of niches within niches."

True indeed. Sony is targeting consumer lifestyles with its products, and enhancing them with more entertainment features. Handspring focuses on expandability, recently adding an MP3 player, a camera, and a global positioning system (GPS) to its growing list of snap-on modules.

"Everyone is figuring out their strategy and moving with it," says Brad Driver, director of investor relations for Handspring. "We're shooting for durability and usability. There's little reason to think that someday you won't be able to do everything with a PDA you can now do with a PC. We'd like to do it sooner, since the idea is to give consumers what they want."

While its licensees appear to be addressing individual consumers, Palm is clearly focusing more of its energies on educational as well as corporate markets, working to develop more applications for the classroom after initial product trials in Chicago-area schools.

"And we hope our recent developmental license with Garmen Industries--which will marry GPS to our OS--offers inroads to government opportunities, most of which use that wireless platform," says Palm's Bourne.

All of this activity confirms that the market's appetite for PDAs--cradle-dependent as well as Internet-enabled--is still far from sated. "There's still a lot of room," says Forrester's Kolko. "Demand is still lower than demand for cell phones. Given the choice, demand for PDAs is still lower than say, broadband upgrades for a home PC or a digital camera. But for people who are mobile and juggle a lot of information, handhelds are a very compelling device."

Future tethered to wireless

Even though the current status of the PDA industry is healthy for just about all of the players, the future of this crowded marketplace

and the hopes of vendors vying for dominance are tied to the direction of wireless development. To the chagrin of handheld manufacturers, who will win and who will lose is largely out of their control.

Which PDA manufacturer seizes on a winning standard first will likely determine who survives and who perishes. If you can't wait for a winner, the Palm OS is your best bet. To hedge your bets, consider the modular approach of Handspring, which can develop snap-on modules for whatever wireless standard emerges.

"Network providers will probably make the ultimate decision," says Handspring's Driver. "Right now, it appears that GSM and W-CDMA could be the standard networks for the future. Consumers have to make a choice today with all the different options. But I don't think it will be too far in the future before these choices number just a couple."

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