

## The salad days of on-line shopping

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I have seen the future of on-line shopping, and it is green. The logos are green. The sweaters are green. Two people walking abreast look like two peas in a pod.

This may take some explaining.

There are many competing visions of on-line shopping. The most down-to-earth version goes like this. Consumers use their modem to examine the merchandise on their computer screen, order the goods, pay for them electronically, and specify a convenient delivery time to their door—all for a low fee.

The concept has been talked about in information technology circles for some time, but reality usually disappoints. For instance, experiments with interactive shopping on television have been maddening at best and cartoonish at worse. Shopping by catalog—L.L. Bean, Land's End, and countless others—does not need to be on line because most customers prefer to talk with an operator. And while Internet shopping is fun and exciting, it does not yet influence the shopping habits of America. On-line shopping sometimes sounds like a candidate for a future that everyone discusses but no one really wants.

That is where the green logos come into play. They belong to a Chicago-based company called Peapod, which claims to have the right formula for on-line grocery shopping. So let's discuss Peapod, or more accurately, Peapod's experience. The company's history illustrates some of the economic constraints shaping the on-line shopping market.

I recently visited Peapod as part of a project examining innovative computing. The National Bureau of Economic Research, with which I am affiliated, oversees this project. The Sloan Foundation funds the research, because it wants to know about trends in American productivity and competitiveness (more on this project another day).

Before we begin, please note this disclaimer: Despite all the nice things I say in this column about Peapod, buyers should make up their own mind about the product. Investors should also do their own homework. Do not sue me. Got that?

Now we get to the interesting economics.

Consider the basic service. What does the customer experience? She—70 percent of Peapod's users are women—calls up a complete list of the local grocer's products and that day's prices (including specials). She has the aid of some slick software that includes category icons (for example, meat, bread), sorting tools (sort by price, sort by fat content), and product lists (his, hers, the kids). An unobtrusive ad may occasionally appear at the bottom of the screen. She is free to ask for more information or ignore it. She chooses items, delivery time, and payment medium. She can also tailor her order in special ways (two ripe tomatoes and two green ones). In effect, she hires a shopping agent to select, bag, and deliver the desired items. If she is unhappy with the delivery for any reason (tomatoes are too ripe), Peapod guarantees to fix it, even to the point of going back to the store.

Look for the wizard behind the curtain. What makes this product work? In a nutshell, it takes technology, management, profitability, and competition.

*Technology.* As with all high-tech ventures, good technology is necessary for commercial success. In this instance, software is crucial. With a good piece of software Peapod has a chance; a bad piece of software would sink the whole venture. Fortunately for Peapod, the PC software (which the customer sees) has many attractive features and works quickly, despite accessing each store's enormous database. It is simple enough for any educated and nontechnical computer user to figure out. So far so good.

**Management.** As with all entrepreneurial ventures, the organization must be good at several things, not just R&D. In this instance, Peapod is in the delivery business—just like UPS, Federal Express, and Domino's Pizza. There is an important difference, however. Peapod delivers frozen foods, perishable fruits and vegetables, dairy products, potato chips, and anything else found at a grocery store. This business operates well only when the delivery people—and there are hundreds of them in Chicago—know what they are doing. Peapod's management has to train their workers, screen out the few bad apples in their workforce, supervise the regulars, and organize the whole operation daily. Those workers must follow the customer's idiosyncratic directions, figure out what to do when the store is out of stock, correct billing errors quickly, and smile in front of the customer. It is hard to profitably run a service like this; it is a daily grind. Hundreds of employees must be efficient, conscientious, and not overpaid. This operation would be enough to scare off most high-tech entrepreneurs.

**Profitability.** The venture has to make money—enough to pay the bank loan, pay the management, and buy new equipment. Peapod, like most young firms, has bet on growth—not rapid growth, but enough to keep the enterprise afloat and moving forward. Since Peapod charges a minimal flat fee per delivery and a small percentage on top of the total sale, Peapod makes its money from big orders.

That brings us to the core economic problem: The grocery business carries over into Peapod's business too. Since most home computer users tend to be from higher income families with little free time, Peapod tends to see the demographic group with the largest grocery bills. Yet, even these people are not willing to pay very much to have their groceries delivered. Peapod needs many deliveries a day to make up for a small return per transaction. Even after six years of growth, the biggest uncertainty for Peapod's future is simple to state: Will enough people sign up and use the service often?

**Competition.** All high-tech entre-

preneurs must be able to fight off the potential competitors that will inevitably imitate whatever succeeds. In this instance, what will happen if IBM, Microsoft, America Online, or UPS throws serious money at a competitive alternative? Consider Peapod's chances: First, Peapod's PC technology will not be hard to superficially imitate. The software is good, to be sure, but there are many talented programmers in Silicon Valley who could write it. However, it might be expensive to hire them because most artistic programmers would prefer top dollar from a game company.

Second, Peapod's backbone computer operation will be hard to copy. Certainly it is not impossible. Several firms have employees who can set up the appropriate links between databases—which were a nightmare to create—and update them daily. However, it will be a time-consuming task.

Third, and not incidentally, does any other firm really want to be in the delivery business? It is laughable to imagine IBM, Microsoft, or UPS in the grocery business. More to the point, those big companies may not possess the appropriate entrepreneurial drive and flexibility of a small, growing firm. Perhaps they would need to set up separate subsidiaries with stock options for the management. Again, this is not impossible; it is just a big hassle.

Fourth, the arrangement between Peapod and a store requires a good working relationship with the store's management, and also with their information technology people, cashiers, and butchers. Can any of Peapod's competitors also establish these links—overcoming the idiosyncrasies of grocery stores in different neighborhoods, cities, and states?

In sum, all this is not impossible for another company to do, just very costly and time consuming. Some other companies might put it together; then again, they might decide that it is not worth the trouble.

Peapod's experience illustrates the most binding economic constraints on the growth of on-line shopping. How many retail markets other than groceries could generate enough volume to make on-line shopping and delivery profitable? Books? Records?

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Videos? Laundry service? Flowers? Furniture? Customers often prefer live operators in these markets; and none of them generate enough high-volume (or repeat) business to make it profitable to set up and maintain an on-line shopping and delivery network. It is also not surprising that on-line Internet shopping for these goods has so far produced more hype and experimentation than profitability. On-line banking is about the only other market where the high volume might make up for the low returns per transaction; and the jury is still out on the profitability of that on-line application.

The management at Peapod is no longer green—in the sense of being new at this business. They are taking their company into its adolescence with good technology and several important lessons under their belt. Soon enough, their business may mushroom. Then potential competitors may be also be green—with envy.

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