When Webvan.com flamed out in July 2001 after having spent almost $1 billion trying to build the Web's largest online grocery store based on huge distribution warehouses in seven U.S. cities, most pundits and investors thought the entire online grocery business model was either a failure or a fraud. Facing the costs of building an entirely new distribution system of warehouses and truck fleets to compete with existing grocery businesses, not to mention the expense of marketing, Webvan compounded its problems by offering below-market prices and free delivery of even small orders at just about any time of the day or night in urban areas often clogged with traffic. But the pundits did not count on Manhattan's FreshDirect—or the ability of traditional grocery chains to move into the ashes of the online grocery business to create solid, profitable businesses. Online groceries garnered sales of $2.4 billion in 2004, and by 2008, sales are expected to grow to $6.5 billion, an annual growth rate of 42%. FreshDirect and other traditional firms are learning how to exploit this potential market with profitable business models.

In 2005, traditional firms such as California's huge Safeway Stores, Royal Ahold (Dutch owner of the U.S. Stop & Shop and Giant stores, among others, and the Internet firm Peapod.com, which handles Internet shopping for Stop & Shop and Giant), and Albertson's (a West Coast chain), are following the lead of the successful British grocer Tesco. Tesco is the largest chain of supermarkets in Britain and opened an online division in 1990. It differed from Webvan's effort because Tesco used its current warehouse infrastructure and existing stores to put together the baskets of food for consumers. Customers could either pick up their baskets or have them delivered within a chosen time window for a fee that recouped most of the delivery costs. In 2002, Safeway began offering online ordering and delivery in Portland, Oregon, and then extended service to San Francisco and Sacramento. Customers register online, entering their per-
sonal information, including their frequent shopper cards. They are shown lists of recently purchased items to speed selection. The prices of goods are the same as those in the stores. Safeway has so-called "pickers" roam the aisles of nearby stores using a computerized picklist that directs them through the store in an efficient pattern, and even specifies the order of packing goods into bags. The orders are put into a van and delivered to the customer within a two-hour window for a fee of $10. According to Safeway.com head Mitch Rhodes, "Our business has doubled in the last two years, and we expect it to double again this year." Although Safeway doesn't disclose how much it sells online, Rhodes says that he believes Safeway's Internet sales could be up to $1 billion within a couple of years. For these traditional supermarket chains, the value being offered to customers is convenience and time savings at prices only marginally higher than self-shopping.

FreshDirect has a more revolutionary, but also successful approach. In September, 2002, Joe Fedele and Jason Ackerman founded FreshDirect as a new kind of high-quality and high-tech food preparation and delivery service in Manhattan, and raised $120 million in venture funding. Operating out of a 300,000-square-foot plant in Queens—just across the river from Manhattan—FreshDirect trucks deliver groceries to densely populated Manhattan, Brooklyn, and Queens at prices 25% below what most New York grocers charge. It charges a $3.95–$4.95 delivery fee, depending on location, and requires a minimum order of $40. The value proposition to consumers is convenience and time savings, but also higher quality at lower prices.

How can FreshDirect succeed at these prices? One answer is that FreshDirect concentrates on very fresh perishable foods and stays away from low-margin dry goods. For instance, the FreshDirect Web site features around 5,000 perishables and 3,000 packaged goods compared to the typical 25,000 packaged goods and 2,200 perishable items that a typical grocery store offers. To do so, FreshDirect created the most modern automated perishable food processing plant in the United States. While most of the factory is kept at 36 degrees to ensure freshness and quality control, dedicated areas vary from a low of minus 25 degrees for frozen foods to a high of 62 degrees in one of its specially designed fruit and vegetable rooms. At the factory, FreshDirect butchers meat from whole carcasses, makes its own sausage, cuts up its own fish, grinds coffee, bakes bread and pastries, and cooks entire prepared meals. FreshDirect co-founder Jason Ackerman likens FreshDirect to Dell Inc. in this regard: FreshDirect employs the same "make-to-order," manufacturer-direct philosophy as does Dell. Cleanliness is an obsession—the factory was built to exceed U.S. Department of Agriculture standards. The firm uses SAP software (an enterprise resource planning system) to track inventory, compile financial reports, tag products to fulfill customers' orders, and precisely control production down to the level of telling bakers how many bagels to cook each day and what temperature to use! It uses automated carousels and conveyors to bring orders to food-prep workers and packers. The FreshDirect Web site is powered by BEA Systems' Weblogic platform, which can track customer preferences, such as the level of fruit ripeness desired, or the preferred weight of a cut of meat. FreshDirect also uses NetTracker, Web site traffic and online behavior analysis software, to help it better understand and market to its online customers. At peak times, the Web site has handled up to
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up to 18,000 simultaneous shopping sessions. The final piece in the formula for profit is a supply chain that includes dealing directly with manufacturers and growers, thus cutting out the costs of middle-level distributors and the huge chains themselves. FreshDirect does not accept slotting fees—payments made by manufacturers for shelf space. Instead, it asks suppliers to help it direct market to consumers and to lower prices. To further encourage lower prices from suppliers, FreshDirect pays them in four business days after delivery-down from the industry pattern of 35 days.

As of December 2005, FreshDirect delivers to around 120 zip codes in Manhattan, Brooklyn, Queens, the Bronx, Westchester, and the Hamptons, a summer resort area located at the eastern end of Long Island, as well as Jersey City and Hoboken in New Jersey. It has fulfilled close to 3 million orders since opening for business, has annual revenue of around $150 million, and is reportedly profitable. Typical order size has grown from $79 to over $100 dollars, with an average of 30 items; the number of orders per day has increased from 2,500 to 4,000; and the company has about 200,000 active customers. In June 2005, Richard S. Braddock, formerly chairman and CEO of Priceline.com, increased his investment in FreshDirect, and was named the company’s Chairman of the Board. According to Braddock, an initial public offering is “one of the options” the company is evaluating as part of its financial strategy. But despite all this success, FreshDirect intends to remain cautious. According to Jason Ackerman, what FreshDirect learned from Webvan’s demise was that: “This is a very complex business, and the customer demands perfection every time we fill an order. Webvan’s rapid expansion was unmanageable … no matter how good the executive team.” “Once FreshDirect achieves $500 million in annual revenues from its current facility, it hopes to open three or four additional processing facilities in the New York metropolitan area, and ultimately reach $2 billion in sales and a 5% market share within five years.

SEARCH ENGINE WARS, ROUND 3

When the Web was first invented, no one envisaged that by 2005 online searching would grow to an over $4.5 billion dollar business. In fact, early pundits thought that online search would be a commodity business, at best a small niche player in e-commerce. But in 2005, with paid search spending comprising more than 40% of the U.S. online advertising market, and paid search ad spending growing at over 20% compared to the amounts spent in 2004, the search engine market is booming. About 75% - 85% of Internet users in the United States use a search engine at least once a month. The top ten search engines in February 2003 responded to an estimated 320 million searches a day. While definitive numbers are not available for 2005, at least one commentator who has analyzed available data has suggested that the number of daily searches has ballooned to several billion.

No one now foretells the ultimate demand for search on the Web; but as the cost (both in terms of money and time) of searching declines, and the power of search engines increases, it is now apparent that search will be a major Web-based industry driven in part by advances in technology. What is less apparent is who exactly will dominate this marketplace and what role technology (as opposed to marketing muscle or economics) will play in the ultimate outcome. Where's the money in search? A related question is how many search engines will remain when the competition is over.

Today five Web sites account for over 92% of all Web searches: Google (46.3%), Yahoo (23.4%), MSN (11.4%), AOL (6.9%), and Ask Jeeves (4.8%). The real powerhouses of search are Google and Yahoo, which provide respectively 54% and 21% of all “editorial” Web searches and 59% and 34%, respectively, of all paid listings. Microsoft unveiled its own proprietary search technology in February 2005, which accounts for about 14% of editorial searches, but still purchases all of its search results from Google. Of these firms, Google stands out as the only “pure” search engine for which search is the only line of business, whereas the other firms are either content portals or, in the case of Microsoft, the provider of 95% of the world’s desktop computer operating systems. In 2004, Google became a public company, greatly expanding its capital foundation to support further growth. Google’s securities filings with the Securities and Exchange Commission show just how profitable the search business has become. In 2005, Google reported revenue of $6.13 billion, 99% of which it derived from various forms of advertising. Google’s net income (profit) was about $399 million.

Leadership in the search engine industry has changed hands several times. In the first round of the search engine wars, the original keyword search engines such as Alta Vista were replaced by Google, which claimed to possess superior technology, and Yahoo which offered content, not just search. In the second round, an upstart firm named GoTo.com exploded onto the scene and created the marketplace for paid placement on search engines. Rather than be at the mercy of obscure search engine ranking rules, pay-for-placement allowed firms to pay for a top ranking, and then pay only when they received a click. GoTo.com grew to become Overture.com and in a few years equaled the size of Google.

Google achieved its early and powerful lead in the search business through superior software technology, a highly efficient computer hardware architecture, and excellent Web site design. Google was started in 1998 by two enterprising Stanford grad students, Sergey Brin and Larry Page, who were studying data mining and the process of analyzing data for patterns. That research later became the basis of their business.
Google, which can search millions of Web pages in less
than a second. Early search engines like Alta Vista
(which once had 90% of the search market) merely
counted how many times a search term appeared on
a given Web page to determine where to rank a particu-
lar page. Google’s engine, on the other hand, uses
outside criteria to validate that a search result is likely
to be relevant. The more other Web pages that link to
a particular page, the higher it jumps in Google’s
ranking structure. This is called “link analysis.”
Google also factors in other information, such as link
structure, fonts, heading, and text of nearby pages.
The company uses sophisticated software algorithms
to carry out each search, drawing on the power of a
rumored 100,000 servers. Some people believe
Google has the largest computing system in the world.
But it is unclear if Google can maintain its
technological edge over either Yahoo (which now owns
Overture and Inktomi) or Microsoft. Google
potentially interferes with Microsoft’s dominance of
the computing experience for millions of Web users worldwide. In the past,
Microsoft purchased search services
for its MSN.com site from other providers such as Inktomi and Ov-
ture (as noted above, both now owned by Yahoo) and other smaller search
providers. In May 2004, Yusuf
Mehdi, head of Microsoft’s upcoming
search technologies, revealed the
details of Microsoft’s search engine
vision. The key points were a single
“end-to-end” search engine for all
local and Internet files (from e-mail
and pictures to global Internet
searches) linked to Microsoft’s
Windows operating system; personal-
ization of search by taking into account user
characteristics and past surfing behavior; local content
aggregation to parallel local Yellow Pages for small
businesses; and other features related to search like
“Stuff I’ve seen before” and “Stuff I should see,” both
based on personalization techniques. Microsoft
officially released the first version of its new search
technology in February 2005, and is using it to power
search at its MSN.com Web site. With 190 million
active Hotmail users, 155 million Messenger
registered users, and over 400 million worldwide
unique visitors each month, MSN is one of the most
popular sites on the Web. In 2006, Microsoft
will introduce the next version of its Windows Server
operating system, Vista. It is expected that the new
universal search engine will be integrated into the
operating system similar to the Internet Explorer
browser. Microsoft may have missed the first and
second rounds of the search engine wars, but it will
definitely be present for the third round.
ONVIA EVOLVES

Few e-commerce start-ups reflect the nimble behavior of entrepreneurial firms better than Onvia. Founded in 1996 by Vancouver entrepreneur Glenn Ballman, Onvia started out as a market hub or exchange aimed at helping the 15 million small businesses in America shop for the best deals on products and services. Starting out at home, Ballman created a Web site where small businesses could buy and sell products, access small business information, and purchase business software. Originally called Megadepot.com, in 1998 Ballman moved to Seattle in part to attract venture capital funding, and renamed the company Onvia.com (in Latin, "on the road"). After several rounds of venture capital investment that accumulated to more than $71 million in 1999, Onvia went public in March, 2000, at the offering price of $21, raising an addition $240 million.

By 2000, Onvia had over a million small business users, and thousands of suppliers, and also had built strategic relationships with Visa and AOL to build co-branded Web sites for the small business market. But the company remained unprofitable because, like so many other exchanges, it could not attract enough suppliers willing to compete against one another in an open market place. This reduced the goods and services available in the marketplace and reduced trading volume. Because Onvia made money only when goods were exchanged, Onvia revenues never achieved a profitable level. By December 2000, Onvia had laid off over 200 employees, and its stock sank to $1, the delisting price for stocks on NASDAQ.

Not one to give up easily, founder Ballman initiated a recovery plan. He sold off Onvia’s online purchasing of software, hardware and business products to a competitor, Firstsource Corporation, retaining only Onvia procurement network that matches buyers and sellers. Then the company completely switched markets from the small business service market to the government procurement and service market. In this new market space, Onvia planned to provide procurement services to more than 50,000 local, state, and federal government

(continued)
agencies (the subscribers) and feed sales leads to small businesses wanting to serve that market. Ovilia makes money by charging government agencies a subscription fee, and suppliers both access and transaction fees. Today these government agencies spend in total about $600 billion, and Onvia is trying to get as much of that business as possible.

In March 2001, Ovilia purchased DemandStar Inc., a leading provider of buyer-side business-to-government platforms that had over 270 government agency subscribers. In June 2001, Ovilia purchased ProjectGuides, the nation’s largest online bid gathering and distribution service. This acquisition permitted the company to greatly increase the flow of bids from agencies into the marketplace.

By 2004, Ovilia had regained stability although it was still not yet profitable. From the huge loss of $116 million in 2000, it reduced losses to just $3.9 million for the year. In 2004, Ovilia signed up almost 80 new government agencies to its DemandStar service (for a total of around 470) and posted 642,000 different public sector opportunities. The number of Ovilia’s subscribers and enterprise licensees also increased, to 25,800. The Ovilia Guide provides businesses with access to opportunities from more than 50,000 local, municipal, state and federal agencies. It appears that Ovilia has finally discovered a fast-growth track for its business.

For the first nine months of 2005, revenues were up over 15% from the previous year. Ovilia’s stock currently sells in the $4–$6 range.


In independent exchanges, there may be many sellers and many buyers simultaneously in the marketplace. EDI is not designed for these types of relationships. There are two types of private industrial networks: single firm networks and industry-wide networks.

**Single-firm private industrial networks** are the most common form of private industrial network. These single-firm networks are owned by a single large purchasing firm, such as Wal-Mart or Procter & Gamble. Participation is by invitation only to trusted long-term suppliers of direct inputs. Single-firm networks typically evolve out of a firm’s own enterprise resource planning system (ERP), and they are an effort to include key suppliers in the firm’s own business decision making (eMarketer, Inc., 2004).

**Industry-wide private industrial networks** often evolve out of industry associations. These networks are usually owned by a consortium of the large firms in an industry and have the following goals: providing a neutral set of standards for commercial communication over the Internet; having shared and open technology platforms for solving industry problems; and in some cases, providing operating networks that allow members of an entire industry to closely collaborate. To some extent, these industry-wide networks are a response to the success of single-firm private industrial networks described above. For instance, Wal-Mart has refused to open its very successful network to other members of the retail industry, in effect to become an industry standard, for fear it will be sharing technology secrets with other retailers like Sears.
IS PRIVACY POSSIBLE IN A WIRELESS WORLD?

You’re walking past the local Pizza Hut and your cell phone rings. Who’s calling? No, it’s not your significant other or a parent or friend. It’s Pizza Hut. They just wanted to let you know that pizzas are on sale—two for one, until 6 P.M. today. Want to find out someone’s address when you know the home phone number and then get a map to that location? Go to Google.com and enter that person’s phone number. The top listing will provide you the name and address of the owner of that phone number. Click a button and you will get a map to the house or business. Google calls it PhoneBook, but it never asked if you search hard enough. Or let’s say you want to set up a wireless network in your house using Wi-Fi (short for an 802.11b radio network). Your neighbor will possibly be able to pick up your signals (and network traffic) if they are within 300 feet of your base station and “join” your network.

These scenarios are not far-fetched, but instead represent capabilities of existing technology. Some of these capabilities have benign or even humanitarian intentions. For instance, since October 2003, all cell phone providers are required to implement “E911” (Emergency 911), in which your cell phone’s embedded GPS chips (global positioning system chips) can be tracked by emergency responders or law enforcement even if the phone is not turned on, and to automatically track the location of phones that are turned on. In true emergencies, these capabilities are helpful. If you are in an emergency and use your cell phone to call for help, authorities can find your location nearly instantly.

But while the primary goal of these wireless tracking capabilities is enhanced public safety, companies are already developing business models centered on applications that will allow them to exploit the technology. Called “location-based services,” companies such as MapQuest work with local businesses to provide directions to restaurants, theaters, and other attractions over cell phones. And with over 170 million cell phone users in the United States today, there are significant business opportunities for telephone carriers, mapping services, and local businesses. Members of several leading advertising agencies were quoted in a December 2004 Business Week article as saying that 2005 would be the breakout year for mobile marketing, with spending projected in the $115-$250 million range. Proposals for the creation of a “wireless 411” cell phone directory currently being developed by a consortium of all of largest cell phone providers (Cingular, Nextel, Sprint, T-Mobile and Alltel) with the exception of Verizon Wireless, creates cause for even greater concern.

The specter of more unsolicited, unwanted phone calls coupled with “Big Brother”-like location tracking has privacy advocates raising the alarm. “Developing wireless technology shows many indications of repeating two privacy disasters of the wired Internet—spam and nonconsensual tracking,” said one privacy expert.

The wireless industry, mindful of the privacy issues raised in the online e-commerce context, has issued calls for self-regulation in an attempt to avoid government-imposed regulation. In December 2003, the Mobile Marketing Association (MMA) released the first industry Code of Conduct for wireless marketing campaigns, developed by an MMA board-appointed Privacy Advisory Committee whose members included Cingular Wireless, Procter & Gamble, and VeriSign, among others. The MMA has recently established a wireless anti-spam committee.

In February 2004, TRUSTe, a not-for-profit organization that operates an Internet privacy seal program, announced its Wireless Privacy Principles (continued)
How the Internet and the Web Change Business

and Implementation Guidelines, drafted by a Wireless Advisory Committee that included TRUSTe, AT&T Wireless, Microsoft, HP, the MMA, the Wireless Location Industry Association, and various consumer advocacy groups such as the Center for Democracy and Technology. The guidelines cover such topics as notice, third-party sharing of personally identifiable information, and the use of location-based information. Under the guidelines, wireless service providers are encouraged to provide a full privacy statement to the consumer prior to or during the collection of personally identifiable information, or upon first use of a service. They should only disclose that information to a third-party for use unrelated to the provision of services if the consumer has provided “opt-in” consent prior to such use. Finally, the guidelines state that wireless service providers should only use location information for services other than those related to placing or receiving voice calls if consumers opt-in.

According to Verizon Wireless spokesperson Jeffrey Nelson, “We are more concerned with maintaining the relationship with our customers than with someone who wants to use their location information.” However, whether all major industry players will embrace the TRUSTe program still remains to be seen.

And what about government regulation? The 2003 CAN-SPAM Act required the Federal Communications Commission to issue rules to protect wireless subscribers from unwanted mobile service commercial messages, and provided that consumers could list their cell phone numbers in the National Do Not Call Registry. In August 2004, in accordance with the CAN-SPAM Act, the FCC proposed regulations, most of which went into effect in October 2004. The FCC prohibited sending wireless commercial e-mail messages unless the individual addressee has given the sender express prior authorization. The FCC also announced that it would create a publicly available FCC wireless domain names list with the domain names used for mobile service messaging so that senders of commercial mail could more easily determine which addresses are directed at mobile services.

To date, wireless location-based services remains largely unregulated. The Wireless Communications and Public Safety Act (often called the “911 Act”) added the term “location” to the definition of customer proprietary network information held by telecommunication carriers, to make it eligible for certain privacy protections offered for customer proprietary network information (CPNI) offered by the Communications Act of 1934. The 911 Act also required that the FCC establish rules regarding how telecommunications carriers treat CPNI. The FCC did so in July 2002, adopting an approach that requires an individual’s affirmative consent (opt-in) for some circumstances and assuming consent is granted unless an individual indicates otherwise (opt-out) in others. The Wireless Location Industry Association has also developed draft wireless policy standards for its members that combines an opt-in and out-out approach. Congress continues to debate how to protect wireless subscribers further, but thus far none have passed since CAN-SPAM in 2003. Will consumers be so enthralled with the idea of services tailored to their specific location that they won’t mind being tracked? Privacy watchdogs don’t think so and predict that any company whose business model is predicated on that assumption is underestimating the increasing sensitivity of the American public to privacy concerns.

Sources: