Morgan Stanley

Equity Research
North America

Industry

Internet & PC Applications Software

Mary Meeker
+1 (1)212 761 8042
Mary.Meeker@morganstanley.com

Industry Overview

December 20, 2002

December 2002 - An Update From the Digital World

MSCI SECTOR	INFORMATION TECHNOLOGY
US Strategist Weight	14.9%
S&P 500 Weight	14.9%

- **We are witnessing strong growth in online transactions this holiday season**
  In recent weeks, the growth in online listings and transactions for platforms like Amazon and eBay has supported our view that both buyers and sellers are ramping up their usage of the Internet.
- **We believe that 2003 may be the year of an Internet wake-up call**
  We foresee an inflection point for more intensive, broad-based Internet usage and highlight four secular trends - globalization, pricing, used goods, and replacement - that may be changing the nature of transactions.
- **Globalization - Expanding the reach of marketplaces for buyers and sellers**
  In our view, online transactions can benefit both buyers and sellers through a dramatic expansion of markets thanks to increased product selection/availability and customer reach and distribution.
- **Pricing - Transparency helps improve market efficiency**
  Pricing transparency - along with advantages of online in terms of convenience, service, selection, and delivery - can help drive prices down (or up in some cases) in markets that have been inefficient.
- **Used goods - Information and reliability improve the appeal of used vs. new**
  In some sectors, we may be seeing a shift from new to used products as better information about the product and the seller helps improve buyer comfort.
- **Replacement - At the margin, online should continue share gain from offline**
  Certain products and services, such as offline media, are being replaced by online versions. Online replacements often carry lower prices than offline comparables, in part due to economies of scale.
- **Our Internet & PC Applications Software Industry View is Attractive**
  Given still-strong 20%-plus expected global growth in Internet users and usage, we continue to believe our stocks could outperform the market over the next 12-18 months.

December 2002 - An Update From the Digital World

Summary and Investment Conclusion

What a title — dare we use these out of favor terms? You bet. We believe that 2003 may be a year of an Internet wake up call — it could see an inflection point for more intensive, broad-based Internet usage and the emergence of some important secular trends related to transactions.

The Internet went from fad to hero to goat at a rapid clip over the past half-decade. But that hasn't stopped the 500MM+ (and growing) Internet users from ramping up their usage of the Net and increasingly using it (as buyers and sellers) as a distribution channel for a rising number of products/services. Recently, we believe the strong business momentum in C3Q (see Exhibit 1) and relative outperformance of shares (vs. the Nasdaq (up 16% CQ4 to date as of 12/19) of many leading Internet-related companies (e.g., Amazon.com, up 36%; eBay, up 30%; Expedia, up 32%; Microsoft, up 21%; and Yahoo!, up 75%) has caught the attention of investors.

The positive data we have gathered thus far in CQ4 have been especially strong:

1) Amazon.com*, according to its Delight-O-Meter metric, reports over 52MM items ordered since November 1, 2002, up an estimated 34% versus the same period last year*. And in the 15 days up to and including December 19, the company has experienced, on average, 49% Y/Y growth in items ordered. In our view, this acceleration of growth reflects increased shopper confidence/trust in Amazon.com's ability to deliver the desired products in time for Christmas — likely augmenting what is already very high customer satisfaction for the company's services. Amazon.com ranked No. 1 in its industry in the most recent American Customer Satisfaction Index conducted by the University of Michigan Business School and ahead of companies like Barnes & Noble and Wal-Mart. This bodes well for the company's future growth prospects, in our view.

2) eBay*, per our weekly listing analysis, has seen global listings growth for CQ4 QTD of 57% Y/Y and 26% Q/Q*. Categories in the U.S. showing special strength include: Real Estate (up 1,184% Y/Y), Home/Garden (up 106%), Consumer Electronics (up 67%), Clothing/Accessories (up 66%), and Photo/Optics (up 65%). We have even seen strong results in the past week, at a time that is typically seasonally slow for eBay. At the margin, eBay appears to be reaching the time-pressed holiday shopper through its increased use of fixed price offerings, and its holiday ad campaign.

In our view, a key driver of these trends is very straightforward and yet underappreciated — online commerce taps into the fundamental desire of consumers to save and/or make a buck, either by buying at the best possible price or by selling their used (or new) products. As eBay has illustrated with its 24MM active customers (as of CQ3:02, up 52% Y/Y), the market for value-oriented (and collectible) items appears to be quite vibrant. We just don't think most folks have fully grasped the power of the Internet to bring liquidity for so many products and for so many people.

We remain optimistic about the long term outlook for these companies and their business momentum, as we believe that the case for secular growth may be in place. As we noted in our recent report, *The Online Classified Advertising Report: It's about Search/Find/Obtain (SFO)…*, http://www.morganstanley.com/institutional/techresearch/online_classifieds1102.html dated November 18, 2002, we believe that SFO is the third "killer application" of the Internet; the first was email (focused on communication), and the second was the browser (focused on information gathering). And in many respects, SFO (focused on transacting/obtaining) has the potential to have broader ramifications for many businesses than the first two killer applications had, in part, because it's related to transactions. We believe the key areas where the impact will be felt are in *globalization*, *pricing*, *used goods*, and *replacement*.

Exhibit 1

Financial Highlights Showing Business Momentum, C3Q02

Amazon.com	Fourth consecutive quarter of accelerating Y/Y revenue (up 33%) and unit (up 35%+) growth.
eBay	Gross Merchandise Sales (GMS) up 60% Y/Y, acceleration from 51% in CQ2.
Expedia	Gross bookings up 103% Y/Y, 3rd consecutive quarter of accelerating Y/Y growth.
Google	9/02 US usage minutes 2.5x MSN Search (No. 2) and Yahoo! (No. 3).
Microsoft	MSN ad revenue up 40% Y/Y.
Overture	Advertiser count up 49% Y/Y, second consecutive quarter of accelerating Y/Y growth.
Yahoo!	Rising monthly revenue per visitor to $0.42 from $0.38 and $0.33 Q/Q.

Source: Morgan Stanley Equity Research

A key development we will be watching closely is how these companies will increasingly be competing with one another. The good news for users is that the competition among the online leaders continues to raise the bar in improving the user experience, which, in turn, should assist *user* and *usage* growth.

We continue to maintain that online will continue, at the margin, to gain share from offline in many markets. According to the US Department of Commerce, ecommerce now accounts for 1.3% of commerce and is growing at a rate more than five times faster than offline commerce, demonstrating gains, at the margin, for online versus offline. But the competitive dynamics of online business are somewhat different than offline, for the variety of reasons we have cited in the past — including technology, network effects, transparency, depth/breadth of information, targeting, discovery, speed, "always on" access, and feedback. As a result, we expect that online commerce will continue to help develop markets for goods and services that are in addition to those that will migrate from offline.

This is not a report about near term stock calls; instead we focus on secular changes in the way transactions occur that we believe are being driven by the online leaders. Specifically, we highlight changes related to globalization, pricing, used goods, and replacement. We believe that the compelling nature of these changes for consumers will continue to drive more transactions online and that this trend will subsequently affect a broad swath of industries and companies. We believe the impact will become increasingly apparent over the next 24 months.

Secular Changes Related to Rising Internet Usage

1) Globalization (aka dramatic market expansion). *Online marketplaces can bring about a dramatic expansion in the ability of vendors (of any size) to reach customers (of any kind), and vice versa, thanks to increased product selection/availability and customer reach and distribution.*

To illustrate the potential transformation of seemingly micro market niches, consider the example of boots for dogs. An estimated 50 million dogs (of the four-legged variety) reside with US households. We concede that most dogs don't need boots, but, in the minds of many dog owners, primarily those living north of 40 degrees latitude, there can be a time and a place. So let's say you are one of those dog owners — what do you do? Unless you happen to live or work across the street from a pet store, the simplest thing to do, to ensure you get the best selection of dog boots and the lowest price, is to use the Web.

If you type "dog boots" on google.com, you can be done with your search/find/obtain (SFO) effort in less than five minutes, and within hours the boots could be making their way to you via post from Kansas — from, yes, The Dog Boot Company. We are not familiar with the operations of this specific company — we merely visited its Web site after it appeared near the top of the page for our Google search, which yielded over 4,000 listings. But we believe the example illustrates how the Internet and high-quality search engines like Google can radically transform the potential marketplace for small and medium-size businesses like this company, which appears to operate its mail-order dog-boot business from a single location.

The benefits to sellers from online search listings and referrals are reflected in the growing revenues for pay-for-performance online advertising services. Overture, for instance, has become the pay-for-performance search leader with the service it offers in conjunction with the likes of Google and Yahoo!, in which advertisers/sellers pay per click. In CQ3, Overture saw a 62% Y/Y increase in the average price per click, to $0.34, from the 73,000 advertisers in its network.

Have we gone to the dogs? We hope not. But we do know several things:

- Online vendors, owing to their sharply expanded potential footprint (an estimated 500 million Internet users worldwide, with over 65% outside the US), have been shipping products to locations that would not have been on their radar screens pre-Web days. And, in our view, this isn't affecting just small to medium-size enterprises (SMEs) selling boots for dogs; it's affecting most businesses;

- According to data from eBay, Yahoo!, Amazon.com and Overture, a growing number of SMEs are aggressively capitalizing on the expanded market opportunities that the Web has facilitated, and many are doing this with relatively low-cost structures;

- Based on our estimates, eBay, Yahoo!, and Amazon.com (and, perhaps Google) have experienced some of the fastest global brand expansions of any companies in history and have done this at the lowest relative expense, by far. And these companies have created powerful global distribution platforms that are increasingly being leveraged by third parties.

2) Pricing. *Online, the ubiquity of pricing transparency for multiple products/services — complemented by convenience, strong customer service, extensive selection and rapid delivery — can drive prices down (or up in selected cases) in markets that have been inefficient.*

- For many goods and services, consumers can confidently and quickly determine whether they are getting the best price, thanks to front-end and back-end shopping bot services like dealtime.com.

- Thanks to the eBay marketplace, IT pros can determine the market value for new/used Cisco routers by referring to the hundreds of listings for Cisco routers that are typically on eBay's site.

- In the airline industry, we believe that the pricing transparency introduced by vendors like priceline.com is one of the factors, along with the weak economic environment, that have contributed to a sharp fall in prices. According to PhoCusWright and the Air Transport Association, as online ticketing has risen (estimated at 15–20% of total U.S. gross ticket bookings in 2002, up from 7% in 2000), average ticket prices have fallen 16% since 2000.

- For services, we note that Keen.com offers instantaneous pricing and availability from rated advisors offering services ranging from tax, personal finance, legal, to health advice.

To state the obvious, many consumers like saving money and purchasing products/services at the lowest possible price. And, we believe that if you ask honest senior executives at many manufacturing companies whether the Internet has helped or hurt their pricing power, the typical response is "hurt."

But price declines aren't always the rule in online marketplaces — particularly for hard-to-find items. We note the experience of some eBay sellers who purchased toys and other items that were expected to be hot holiday gifts before the shopping season kicked in and then sold them at "what the market would bear" premiums on eBay in December.

3) Used goods. *In certain sectors, we expect continued migration from the purchase of new to used products, as buyers become more comfortable with used-product alternatives; online platforms are facilitating this shift with improved information about product availability and the quality of both the product and the seller. Given that used products tend to carry lower prices than new, at the margin, this trend should push overall prices lower.*

In CQ3, eBay became the largest used car vendor in the U.S. (it traded 70,000 units), when it pulled ahead of AutoNation and CarMax. Based on estimates from Morgan Stanley auto analyst Steve Girsky, since 2000, used car unit sales have grown at a CAGR of 1.5%, versus a (1.2%) CAGR for new cars. Note that used car sales tend to outpace new car sales in economic downturns and, on a gross merchandise sales basis, per eBay, it accounts for about 0.6% of the total U.S. automotive market (including used cars plus parts).

Amazon.com, since it started offering used products in November 2000, has seen the sales of these items rise to account for 15–20% of its U.S. unit sales in CQ3:02. And we find it notable that, based on contribution dollars per sale, Amazon.com should be indifferent whether a user buys a new CD from Amazon.com or a used CD from a marketplace vendor on Amazon.com.

While this trend is still nascent, we expect used-good transactions to continue to show strong growth. Online sales of used goods should also get a boost as vendors, following the lead of the auto, boat and machine industries (and, yes, Callaway golf clubs), will offer pre-owned certifications for their goods. While we don't foresee a 1:1 tradeoff with the purchase of new goods, at the margin, these sales will likely negatively affect sales of new goods.

4) Replacement. *At the margin, certain products/services, such as offline media, are being replaced by online versions. Typically the online replacement versions carry lower prices than their offline comparables, in part, because of the benefits of technology and economies of scale.*

Yahoo! and Google News have changed the way tens of millions of people gather news, and this trend will likely accelerate as the user experiences improve. Yahoo! Finance serves up news and information to nearly 7MM users each month.

According to Media Metrix, in October, over 63 million US Internet users listened to online music. Ask a group of college students if they know anyone who's buying used original CDs on the Web, downloading them onto their PCs and MP3 players, and reselling the original CDs on the Web — or not even bothering with the CDs. Ask the college students what percentage of their news, information, non-perishables (excluding the likes of food and beer), and music listening comes from online. Just ask them how much time they spend online. We believe that for the Internet, this trend among the younger demographics is its best friend.

Consider some key datapoints from our colleagues that help illustrate the impact we foresee from this growing base of high-end computer users. Rebecca Runkle estimates that Apple will ship 400,000 iPods in 2002 and estimates that overall shipment rates of high-end MP3 player products could more than double next year into a base of tens of millions of users. Arindam Basu estimates that there are about 10MM Wi-Fi users today and that there will be nearly 20MM by year-end 2003. Solin Cho estimates that 22MM digital cameras will ship in 2002 and over 26MM in 2003. Per Jim Berlino, more than 110MM hard drives with 20GB+ of storage for PCs have been shipped, which implies that many PC users have massive storage capability on their devices. According to our own estimates, Microsoft has shipped more than 85MM copies of Windows XP (launched in CQ4:01) — each PC enabled with this operating system is, by default, a powerful digital media programming device (especially when complemented by broadband access). And, lastly, we estimate there are more than 500MM Internet users worldwide, growing at a rate of 20% annually.

Looking at these datapoints, we get the sense that they are large enough to keep moving the needle for ongoing growth.

Companies mentioned in this report include: Amazon.com (AMZN, $21.69, Overweight-V); eBay (EBAY, $68.73, Overweight-V); Expedia (EXPE, $66.91, Overweight-V); Microsoft (MSFT, $53.11, Overweight-V); priceline.com (PCLN, $1.39, Equal Weight-V); Yahoo! (YHOO, $16.71, Overweight-V).

For a discussion, if applicable, of the valuation methods used to determine the price targets included in this summary and the risks related to achieving these targets, please refer to the latest published research on these stocks. Research is available through your sales representative or on Client Link at www.morganstanley.com and other electronic systems.

Global Stock Ratings Distribution

(as of Nov 30, 2002)

	Coverage Universe		Investment Banking Clients (IBC)		
Stock Rating Category	Count	% of Total	Count	% of Total IBC	% of Rating Category
Overweight	607	31%	240	37%	40%
Equalweight	954	48%	301	46%	32%
Underweight	427	21%	110	17%	26%
Total	1,988		651		

Data include common stock and ADRs currently assigned ratings. For disclosure purposes (in accordance with NASD and NYSE requirements), we note that Overweight, our most positive stock rating, most closely corresponds to a buy recommendation; Equal-weight and Underweight most closely correspond to neutral and sell recommendations, respectively. However, Overweight, Equal-weight, and Underweight are not the equivalent of buy, neutral, and sell but represent recommended relative weightings (see definitions below). An investor's decision to buy or sell a stock should depend on individual circumstances (such as the investor's existing holdings) and other considerations.

ANALYST STOCK RATINGS

Overweight (O). The stock's total return is expected to exceed the average total return of the analyst's industry (or industry team's) coverage universe, on a risk-adjusted basis, over the next 12-18 months.

Equal-weight (E). The stock's total return is expected to be in line with the average total return of the analyst's industry (or industry team's) coverage universe, on a risk-adjusted basis, over the next 12-18 months.

Underweight (U). The stock's total return is expected to be below the average total return of the analyst's industry (or industry team's) coverage universe, on a risk-adjusted basis, over the next 12-18 months.

More volatile (V). We estimate that this stock has more than a 25% chance of a price move (up or down) of more than 25% in a month, based on a quantitative assessment of historical data, or in the analyst's view, it is likely to become materially more volatile over the next 1-12 months compared with the past three years. Stocks with less than one year of trading history are automatically rated as more volatile (unless otherwise noted). We note that securities that we do not currently consider "more volatile" can still perform in that manner.

Ratings prior to March 18, 2002: SB=Strong Buy; OP=Outperform; N=Neutral; UP=Underperform. For definitions, please go to www.morganstanley.com/companycharts.

ANALYST INDUSTRY VIEWS

Attractive (A). The analyst expects the performance of his or her industry coverage universe to be attractive vs. the relevant broad market benchmark over the next 12-18 months.

In-Line (I). The analyst expects the performance of his or her industry coverage universe to be in line with the relevant broad market benchmark over the next 12-18 months.

Cautious (C). The analyst views the performance of his or her industry coverage universe with caution vs. the relevant broad market benchmark over the next 12-18 months.

Stock price charts and rating histories for companies discussed in this report are available at www.morganstanley.com/companycharts. You may also request this information by writing to Morgan Stanley at 1585 Broadway, 14th Floor (Attention: Research Disclosures), New York, NY, 10036 USA.

The information and opinions in this report were prepared by Morgan Stanley & Co. Incorporated ("Morgan Stanley").

This report does not provide individually tailored investment advice. It has been prepared without regard to the individual financial circumstances and objectives of persons who receive it. The securities discussed in this report may not be suitable for all investors. Morgan Stanley recommends that investors independently evaluate particular investments and strategies, and encourages investors to seek the advice of a financial adviser. The appropriateness of a particular investment or strategy will depend on an investor's individual circumstances and objectives.

The following analyst, strategist, or research associate (or a household member) owns securities in a company that he or she covers or recommends in this report: Mary Meeker - Amazon.com (common stock), eBay (common stock), Microsoft (common stock), Yahoo! (common stock).

Morgan Stanley policy prohibits research analysts, strategists and research associates from investing in securities in their MSCI sub industry. Analysts may nevertheless own such securities to the extent acquired under a prior policy or in a merger, fund distribution or other involuntary acquisition.

This report is not an offer to buy or sell any security or to participate in any trading strategy. Morgan Stanley, Morgan Stanley DW Inc., affiliate companies and/or their employees may have investments in securities or derivatives of securities of companies mentioned in this report, and may trade them in ways different from those discussed in this report. Derivatives may be issued by Morgan Stanley or associated persons.

Within the last 12 months, Morgan Stanley, Morgan Stanley DW Inc. or an affiliate has received compensation for investment banking services from Expedia and Microsoft.

In the next 3 months, Morgan Stanley, Morgan Stanley DW Inc. or an affiliate expects to receive or intends to seek compensation for investment banking services from Amazon.com, Expedia, Microsoft, Yahoo!, eBay and priceline.com.

As of November 29, 2002, Morgan Stanley, Morgan Stanley DW Inc. and/or their affiliate companies beneficially owned 1% or more of a class of common equity securities of the following companies covered in this report: Amazon.com, Expedia, Microsoft, Yahoo! and eBay.

Morgan Stanley, Morgan Stanley DW Inc. and/or their affiliate companies make a market in the securities of Amazon.com, Expedia, Microsoft, Yahoo!, eBay and priceline.com.

The research analysts, strategists, or research associates principally responsible for the preparation of this research report have received compensation based upon various factors, including quality of research, investor client feedback, stock picking, competitive factors, firm revenues and investment banking revenues.

Morgan Stanley has no obligation to tell you when opinions or information in this report change. Morgan Stanley and its affiliate companies are involved in many businesses that may relate to companies mentioned in this report. These businesses include market making and specialized trading, risk arbitrage and other proprietary trading, fund management, investment services and investment banking.

This report is based on public information. Morgan Stanley makes every effort to use reliable, comprehensive information, but we make no representation that it is accurate or complete.

This report has been prepared by Morgan Stanley research personnel. Facts and views presented in this report have not been reviewed by, and may not reflect information known to, professionals in other Morgan Stanley business areas, including investment banking personnel.

The value of and income from your investments may vary because of changes in interest rates or foreign exchange rates, securities prices or market indexes, operational or financial conditions of companies or other factors. There may be time limitations on the exercise of options or other rights in your securities transactions. Past performance is not necessarily a guide to future performance. Estimates of future performance are based on assumptions that may not be realized.

This publication is disseminated in Japan by Morgan Stanley Japan Limited; in Hong Kong by Morgan Stanley Dean Witter Asia Limited; in Singapore by Morgan Stanley Dean Witter Asia (Singapore) Pte., regulated by the Monetary Authority of Singapore; in Australia by Morgan Stanley Dean Witter Australia Limited A.B.N. 67 003 734 576, a licensed dealer, which accepts responsibility for its contents; in certain provinces of Canada by Morgan Stanley Canada Limited, which has approved of, and has agreed to take responsibility for, the contents of this publication in Canada; in Spain by Morgan Stanley, S.V., S.A., a Morgan Stanley group company, which is supervised by the Spanish Securities Markets Commission (CNMV) and states that this document has been written and distributed in accordance with the rules of conduct applicable to financial research as established under Spanish regulations; in the United States by Morgan Stanley & Co. Incorporated and Morgan Stanley DW Inc., which accept responsibility for its contents; and in the United Kingdom, this publication is approved by Morgan Stanley & Co. International Limited, solely for the purposes of section 21 of the Financial Services and Markets Act 2000 and is distributed in the European Union by Morgan Stanley & Co. International Limited, except as provided above. Private U.K. investors should obtain the advice of their Morgan Stanley & Co. International Limited representative about the investments concerned. In Australia, this report, and any access to it, is intended only for "wholesale clients" within the meaning of the Australian Corporations Act.

The trademarks and service marks contained herein are the property of their respective owners. Third-party data providers make no warranties or representations of any kind relating to the accuracy, completeness, or timeliness of the data they provide and shall not have liability for any damages of any kind relating to such data. The Global Industry Classification Standard ("GICS") was developed by and is the exclusive property of MSCI and S&P.

Additional information on recommended securities is available on request.

The Americas
1585 Broadway
New York, NY 10036-8293
United States
Tel: +1 (1)212 761 4000

Europe
25 Cabot Square, Canary Wharf
London E14 4QA
United Kingdom
Tel: +44 (0)20 7513 8000

Japan
20-3, Ebisu 4-chome
Shibuya-ku,
Tokyo 150-6008, Japan
Tel: +81 (0)3 5424 5000

Asia/Pacific
Three Exchange Square
Central
Hong Kong
Tel: +852 2848 5200