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## Understanding Internet Valuations: An E-Business Imperative

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It is the dawn of a new era. A wonderful technology promises to revolutionize processes and communications, indeed everyday life. However, businesses are facing tremendous difficulties in trying to value strategies and options regarding this technology. Many are perplexed about investment requirements. Others have concerns regarding the cannibalization of current business models.

This describes our current experience with the Internet. Could this just as easily describe the emergence of the telephone or the introduction of the steam engine?

Companies in the Internet business or firms integrating e-business into their strategy face similar decisions as their predecessors when society-changing technologies challenged their markets. Strategies that create value need to be identified and selected. Investment decisions have to be made. Companies considering strategic initiatives need to appropriately value the alternatives.

As the Internet evolves, companies are being formed with innovative products and services on a daily basis.

This has led to the complex question of how one should value these new companies or the e-business portions of existing companies. This is an unavoidable issue for executives. For example, exchange-of-shares transactions are common among Internet companies and assessing the intrinsic value of those shares is critical. Also, valuing and

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*Understanding Internet Valuations: An E-Business Imperative* was written by Steven Rosner, Vice President in L.E.K.'s Boston office.

comparing alternative strategies and investments is a management challenge. However, it should be comforting to note that while the Internet may seem overwhelming, many existing valuation tools can be applied in the cyber-world just as they have for more traditional companies.

In past SVA newsletters, L.E.K. has tackled topics such as valuation and market signals analysis and discussed our belief that the value of a company, or of any underlying asset, is best calculated by discounting its expected cash flows. This analysis can be performed even for Internet companies that have limited revenue and negative operating profit. The bulk of their earnings and cash flow is expected in the future when more customers are on-line, when greater on-line advertising occurs, or when more business is transacted. The reality is that all Internet companies must eventually offer goods or services that result in revenues, operating profits and cash flows.

### **Frameworks for Analysis**

Consider two types of Internet business models:

#### ***E-commerce company***

This type of company has a novel business model that involves selling goods over the Internet. It possesses significant first-mover advantage and has the ability to create barriers to entry and build a significant brand. The result is the company has the capability to grow revenues faster than competitors. It can potentially build economies of scale in its purchasing, pick and pack, or customer service functions resulting

in greater margins than competitors. A valuation of an e-commerce company can be quantified using assumptions for revenue growth, margins, and required investment based on its strategic plans.

#### ***Internet portal company***

This type of company relies upon several sources of revenue including advertising and transaction fees. To quantify the value of this company, one must make assumptions for this portal's different sources of revenue, margins, and required investment. The portal is building a recognized and valuable brand name and providing well organized and proprietary content that can drive more traffic. Results can be greater advertising and transaction revenues. To create value, the investments made to build brand equity, distinguish its content, and to improve the site's navigation must result in:

- Greater revenues
- Improved margins
- Less future investment

The key in both of these types of companies is that *their value is still a function of the expected future cash flows and the level of risk associated with success or failure*. The difficulty is forecasting reasonable performance scenarios. Therefore, it is instructive to look at existing Internet companies to see what underlying assumptions would justify their current market valuations. In other words, what are the implicit assumptions regarding an Internet company's future performance that would justify its current valuation? Is the valuation based on the current business that these companies are operating in today or is the value based upon the opportunity to expand well beyond into new products, services and global markets?

### **Valuing Amazon.com, eBay and Yahoo!**

To analyze the assumptions behind the current valuations, L.E.K. chose three benchmark firms with different business models. First, we looked at Amazon.com, the on-line retailer of books, CDs, movies and other goods. Second, we analyzed eBay, the on-line auction house. Finally, we examined Yahoo!, the popular portal company that recently acquired GeoCities and Broadcast.com.

L.E.K. used a similar methodology for each company:

- Gather historical data to determine the past and current performance of the company, its cash and debt position, and its current market capitalization.
- Calculate a weighted average cost of capital using the capital asset pricing model (CAPM).
- Review Wall Street analyst reports that focus on the performance projected over the next few years.
- When devoid of specific information, make reasonable assumptions for other parameters such as tax rates and investment requirements.
- Using the collected data, create a valuation model that would back solve for future variables such as revenue, margins, and investment using the current market valuation as a given. For this study, L.E.K. applied a 15 year forecast period ending in the year 2013.

Each company's results reveal compelling insights as to the cash flow forecast assumptions that are implicit in today's market valuations.

## Amazon.com

As of market opening May 21, 1999, Amazon.com had a market capitalization of \$20.8 billion based on a stock price of \$129 per share, a significant drop from its high earlier in the year. L.E.K. used four different investment analyst reports for forecasts of such items as cost-of-goods-sold, product development, sales and marketing expense, and G&A. The average of these reports was taken to determine the near-term inputs for the valuation with assumptions made for fixed and working capital investments.

In this model, we assumed a 3% growth in perpetuity of operating profits from the end of the 15 year forecast period. To define the required revenue growth for Amazon.com, we forecasted costs at a percentage of revenues and backsolved for a revenue growth rate that would justify its current valuation. Consistent with analyst forecasts, we used operating margins that grew to 6% by the year 2002. We then assumed a steady state operating margin of 10% for the period 2003 to 2013.

L.E.K.'s results find that Amazon.com will need to grow revenues at a compound annual growth rate of 33.8% for 15 years to support its current valuation. This alone is quite a feat and implies a faster growth rate than Intel (22.9%), and Microsoft (32.9%) had over the past five years. Highly successful non-Internet retailers such as Wal-Mart and Home Depot have experienced 5-year periods with annual revenue growth rates over 40%. However, as these companies have matured, they have not been able to sustain these growth rates for an extended period of time such as 15 years.

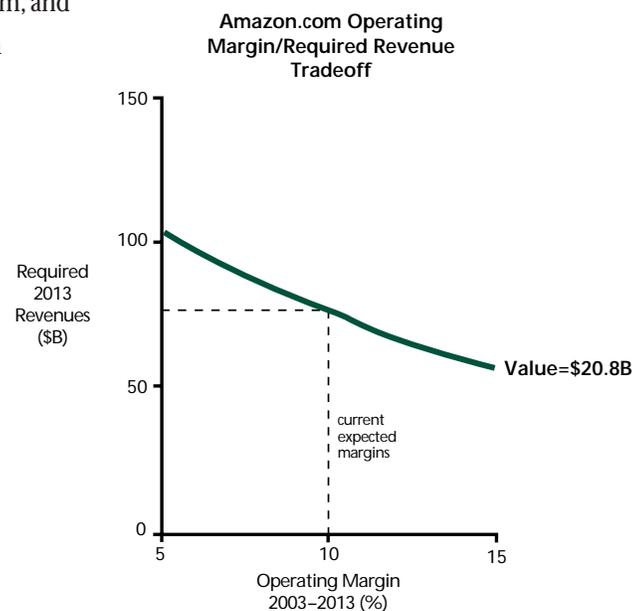
A 33.8% growth rate implies that Amazon.com will achieve revenues of nearly \$71 billion in 2013. This figure is almost equal to the expected U.S. market for books, recorded music, and video tapes/discs *combined* (\$87 billion) in 2013. Since the Internet has no geographical boundaries, what about the global marketplace? The U.S. is roughly one third of the worldwide market for these products (lower for recorded music, higher for books). This implies that Amazon.com would need to capture between 20% and 40% of worldwide sales for these products or add many new types of products to achieve the revenue levels required to justify its valuation.

Can Amazon.com build barriers to entry that will allow growth at this pace for 15 years? One threat to its current business will be music sales that use advances in digital compression technology to distribute music over the Internet. While Amazon.com could enter this business, it is important to note that sales would trade-off with existing revenues from CDs and tapes. Additionally, other competitors such as MP3.com, EMusic.com, and Lycos have already gotten a jump in this area.

Amazon.com recently launched an online auction site. While this new endeavor will generate additional revenues, it faces a formidable competitor in eBay, which has a significant first-mover advantage. Additionally,

as we will see in the eBay discussion, auction merchandise sales only generate commissions of approximately 6% to the host website. The gross auction sales required to generate significant net revenues will be enormous. An acquirer of Amazon.com or an investor in its shares must therefore have a high level of confidence that large, additional revenue sources will be added in the future to achieve these lofty revenue levels. While still early, Amazon.com appears to be building a track record that indicates it can find these new revenue sources. Among its recent investments are drugstore.com, pets.com, and HomeGrocer.com.

Beyond the need to find additional revenue sources, Amazon.com must maintain its margins over time. Current expectations for operating margins are in the range of 10%. As the figure below demonstrates, small decreases in operating margins will drastically increase the 2013 revenues required to justify the current market value. In the competitive world of the Internet, where a lower priced purchase is just



a click away, these margins may be difficult to sustain. On the other hand, small improvements in margins will reduce Amazon.com's 2013 revenue requirements, but less significantly. Operating margins of 15% would still require revenues greater than \$50 billion by the year 2013.

Amazon.com also has the unusual situation of negative working capital. Because it receives cash from customers almost immediately and pays its suppliers over time, Amazon.com generates cash from working capital with each dollar of revenue. The more Amazon.com grows, the more cash flow it generates. As a result, the positive value impact is estimated to be as much as \$5 billion.

Another component of Amazon.com's current valuation is the fact that the majority of its value lies in the terminal value. This indicates that most of the cash flows critical to valuation will come after 2013, when it is even more difficult to predict the state of the industry. Amazon.com will have to perform exceptionally well for

a long time in a hyper-competitive environment facing constant change. It may have to re-invent its business model several times over this time period, perhaps targeting new customers or launching new products or services.

**eBay**

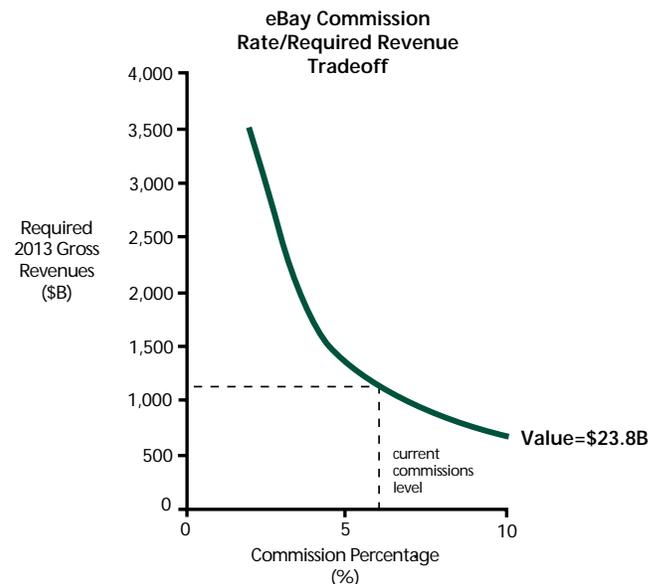
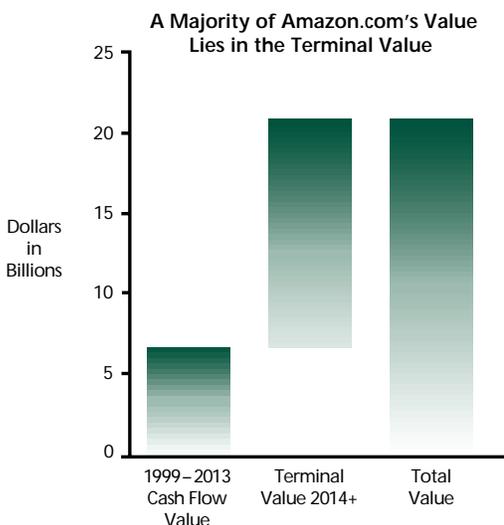
eBay has been a phenomenal start-up company. Two factors are most significant in justifying eBay's recent market cap of \$23.9 billion (at a stock price of \$190 per share): revenue growth and the net revenue/gross merchandise sales (commission) it earns on all transactions. Assuming the commission will stay at 6%, eBay's revenue growth rate will need to be 65% per annum from 2003 to 2013 to justify its May 21, 1999 share price.

Is a compound annual growth rate of 65% sustainable through 2013? This rate implies net revenues of approximately \$70 billion in 2013. If eBay maintains its 6% commission rate, it will have to move approximately \$1.17 trillion of goods in 2013. This would be over 7% of the expected

U.S. nominal GDP of \$16 trillion in 2013 (assuming annual growth of 4.4%). As the chart below demonstrates, small reductions in the commission rate earned by eBay on auctioned merchandise drastically increases the gross sales required in 2013 to justify eBay's valuation.

In addition to commission rates, eBay's value is highly sensitive to several additional factors, as illustrated in the Key Sensitivities table. For example, a lower growth rate of 60% instead of the implied 65% reduces eBay's value from \$23.8 to \$17.8 billion.

Analysts have fewer suggestions for additional revenue sources for eBay than for Amazon.com and Yahoo!. Most of eBay's future investments seem to focus on improving the auction process which will make them more competitive with newer auction websites, but are unlikely to generate substantial additional revenues.



### Key Sensitivities for eBay's Valuation

Variable	Base Case Assumption	Sensitivity	Impact on Value (Base=\$23.9B or \$190/share)	
Revenue Growth Rate	65%	60/70%	(6.0B) \$142/share	7.6B \$251/share
Commission Rate	6%	3/9%	(12.1B) \$94/share	12.0B \$285/share
Operating Margin	40.5%	30/50%	(6.2B) \$141/share	5.5B \$234/share
Perpetuity Growth Rate after 2013	3%	0/6%	(3.6B) \$162/share	5.8B \$236/share

As with Amazon.com, even if an investor or potential acquirer believes that eBay will meet the assumptions implicit in its current valuation, a large portion of eBay's valuation is in its terminal value (see below), indicating a high level of uncertainty. With Amazon.com and others entering the on-line auction market, can eBay maintain a 65% compound annual growth rate for the next 15 years? Will it be able to sustain its commission rate over that time? Will it find the additional sources of revenue and cash flow?

### Yahoo!

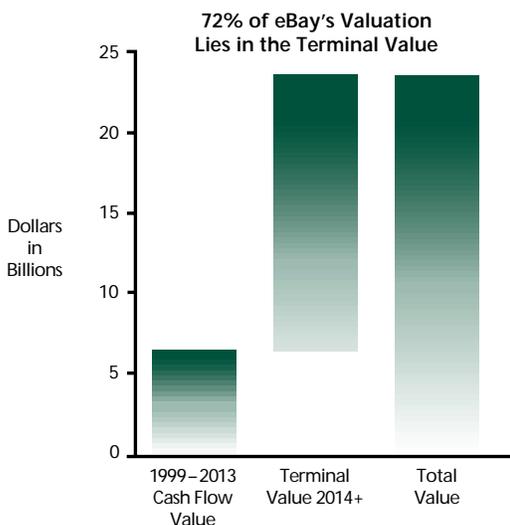
Yahoo! became profitable in 1998 with sales of approximately \$200 million. L.E.K. calculates that Yahoo! will need revenue growth rate of 48% per annum for the period from 2003 to 2013 and 2013 revenues of \$66 billion to justify its current market value of \$31 billion (at a May 21, 1999 stock price of \$151 per share). Furthermore, these forecasts assume that Yahoo! will earn operating margins of nearly 40% in 2013.

Is it realistic to think that Yahoo! will achieve annual revenues of \$66 billion in 2013? The bulk of Yahoo's current revenues come from advertising. Analysts estimate that the market for Internet advertising will reach \$6 billion by 2002. Applying a generous growth rate of 20% per annum, this market will reach a size of \$44 billion by 2013. Even if Yahoo! is able to capture a 25% share of the Internet advertising market in 2013, it still has to find another \$55 billion of revenue.

Although uncertainty exists concerning Yahoo!'s eventual business model, it has been suggested that additional revenues could come from e-commerce transactions or possibly

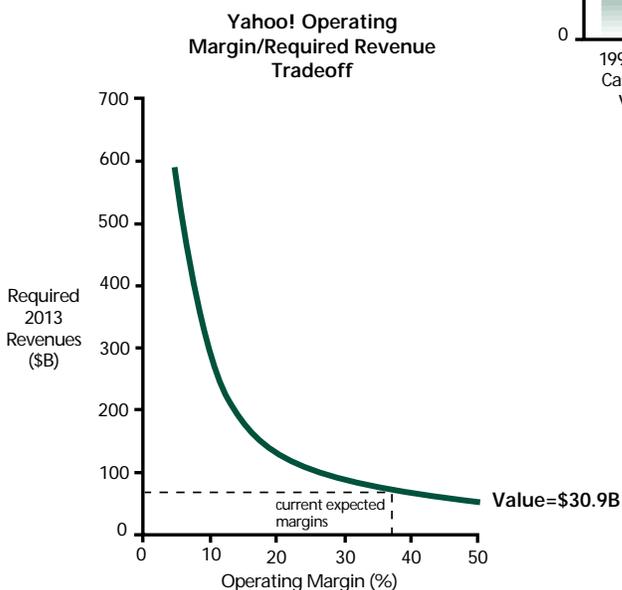
subscriptions. E-commerce that will be managed by portal companies in 2002 is estimated at \$50 billion. If this market grows at 25% per annum from 2002 to 2013, this market will reach \$580 billion by 2013. Yahoo! must capture almost 10% of this market to get the additional \$55 billion in revenue needed to achieve \$66 billion. While this market share does not seem impossible, remember that other popular portal companies such as MSN, Excite, Lycos, and AOL already exist and new companies are launching their own e-commerce strategies daily. Achieving and maintaining a 10% share over a 15 year period will be extremely challenging.

There are two possible e-commerce models Yahoo! might adopt. First, Yahoo! could realize commissions from "click through" sales (sales in which another site actually sells the merchandise but pays Yahoo! a commission for directing the customer to that site).



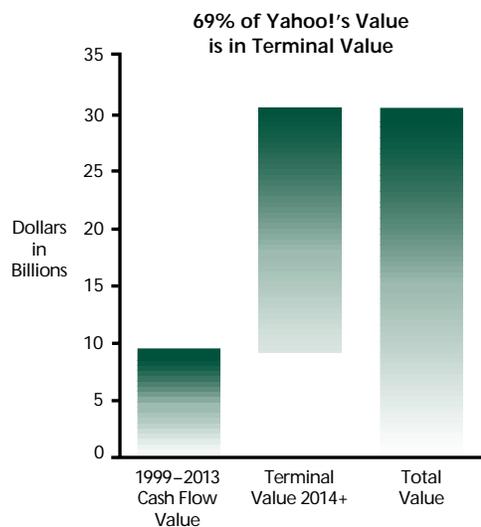
In this case, Yahoo! would only earn a small percentage, say 1–5%, of gross sales much the way eBay does. The lower commission rate would mean that they would have to be responsible for much more than 10% of the market gross sales.

In a second e-commerce model, Yahoo! would actually own and sell its own goods much like Amazon.com or any other traditional retail store. A key problem with this model is that Yahoo! would likely earn much lower margins (remember, expected Amazon.com margins are forecasted to be 10% in our model) than the 40% Yahoo! is currently expected to make on its advertising business. To compensate for lower margins, Yahoo! would have to achieve total revenues significantly more than the \$66 billion projected by our analysis. Small decreases in the operating margins earned by Yahoo! have a very large impact on the revenue growth required for its current valuation, as demonstrated below.



In fact, if Yahoo's margins were around 10%, the revenue required in 2013 to justify the current valuations would be over \$300 billion!

The great degree of uncertainty Yahoo! has in its business model should be reflected in its valuation. This is further evidenced by the figure below which demonstrates that 69% of Yahoo's value is in its terminal value. Investors or partners who take Yahoo! stock as currency must be confident that the company will successfully find significant new sources of revenue and maintain its very high expected operating margin over the next 15 years and beyond.



## Real Options

These cases suggest that exceptional performance must be achieved within their current business models to justify their valuations. More importantly, the analysis shows that an extraordinary amount of their stock price (67%–72%) is based on their terminal values. Why is the market placing such high values given the uncertainty? One explanation is that managers and investors believe future business models, competitors and customers will all be redefined with the growth of the Internet. The assumption is that a company will be able to capitalize on these changes (e.g., enter new markets, forge new alliances, etc.). This belief drives investors to pay a premium in order to secure a placeholder for the still-to-be-defined opportunity. This is the notion of real options investing.

Real options are not new to the analyzing and planning landscapes. For years, L.E.K. has integrated real options theory into strategic business plans when considering growth opportunities and new revenue sources for all types of businesses. Real options are even more important to successful Internet business strategies because markets have embedded a component of their stock value in this enigmatic area.

## Internal E-Business Strategies

What if your traditional company is considering an e-business strategy and you are concerned about cannibalizing your current business model? L.E.K. experience suggests three fundamental activities in order to determine the most appropriate e-business strategy within an existing company:

- Develop several different scenarios for the evolution of your business and the appropriate business model to serve your customers.
- Develop reasonable assumptions for each scenario.
- Place a value on the alternative strategies.

In 1997, Amazon.com was just beginning to take off. It is probable that executives at book retailers Barnes & Noble and Borders went through the process of valuing an e-business strategy. It is also likely that they developed a scenario that valued their cyber business. They may have been wary of potential cannibalization of their core operations. If Barnes & Noble's on-line business was valued with assumptions similar to the expected performance of Amazon.com, it would have concluded that building an on-line brand would create enormous opportunities. If Barnes & Noble acted 18 months earlier than it did and utilized its stores to advertise its website and built a premier on-line brand early in the game, it would have struck a blow to Amazon.com's market share.

The lesson learned here is that companies must carefully analyze business strategies and various strategic options. The difficulty is in the development of appropriate assumptions and scenarios to value alternative strategies. At L.E.K., we gather all the facts available and model different scenarios that permit management to make informed decisions. To perform this analysis, we recommend an approach that envisions potential future market structure and competition, and quantifies alternative strategies within that environment.

## **Mergers and Acquisitions: Price vs Value**

Mergers and acquisitions, whether in the Internet world or elsewhere, may be the ultimate application of the analysis discussed in this newsletter. Significant uncertainty exists regarding the sustainability of business models. Current prices may not reflect the underlying value. Organizations considering mergers and acquisitions must consider that the enthusiasm for Internet companies and technology may result in the market *price* exceeding the underlying *value*. However, it is critical in any deal to understand its underlying value both on a standalone basis and with synergies including the real option of entering new businesses, geographics or creating new business models. This becomes more challenging when business models, the competitive environment and the market requirements are all in flux.

L.E.K. typically analyzes several potential business cases that reflect evolving industry and competitive scenarios and the evolution of business models. For example, for a broadband on-line service, we valued scenarios that included:

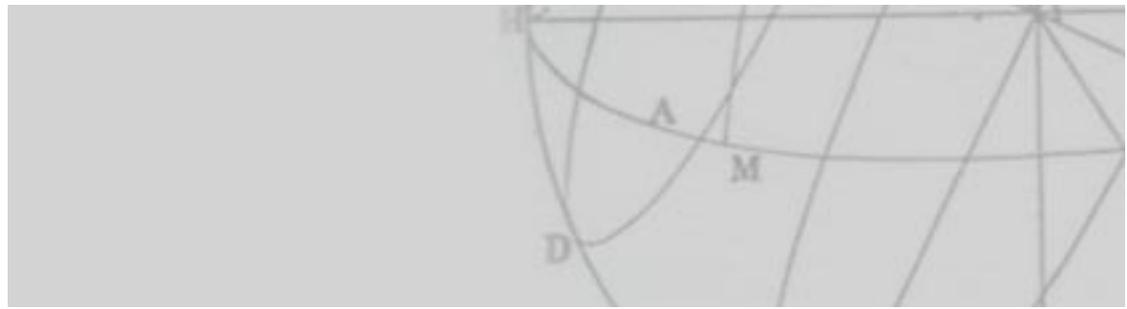
- Various levels of advertising revenue
- Various levels of transaction revenue
- Ability to provide subscription services
- Competitive scenarios depending on telephone companies roll-out of DSL
- Differing levels of penetration of PCs or non-PC Internet connections

The end result was a variety of scenarios that were all reasonable and allowed management to make decisions with a more complete picture of the value of the business based upon a range of likely outcomes.

## **Leveraging your E-Business**

The expectations built into the stock prices of many Internet players are aggressive. Achieving the required results over a long period of time in an environment with so many rapid changes may not be impossible, but will be extraordinarily difficult. To justify some of today's share prices, many investors are anticipating a range of new unplanned opportunities to unfold. These investors are willing to pay today for the option that these potential opportunities will create substantial value.

L.E.K. is very bullish on the Internet and its ability to help businesses create significant shareholder value. We believe that fortunes will continue to be made and lost based upon the ability to leverage this medium better than competitors and the ability to provide goods and services with unique value propositions. However, the analysis of these opportunities, risks, and value-creating business strategies does not rely on new frameworks, metrics or rules-of-thumb. The same rigorous valuation tools that have been used to develop successful strategies across all types of business equally applies to this new sector.



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