Innovation: the growing importance of venture capital

Global venture capital insights and trends report 2008
The process of globalization has reduced the potency of many sources of competitive advantage. Companies around the world today enjoy broad access to global resources that help them to compete on factors such as price, process, quality and customer service, diminishing the advantage these confer. One element of competition, however, is harder to replicate and scale successfully: innovation. On an increasingly flat global playing field, successful innovators differentiate themselves and reap the rewards of the value created.

As Larry Keeley of the Doblin Group points out in his article in this report, a critical component of innovation today is seeing a transformation sooner than others and becoming demonstrably the best in the world at it. And this is a world full of transformations – the ongoing rise of China and India, shifting demographics in developed markets, quickly evolving modes of communication, intensifying shortages in resources and growing concern over climate change.

More and more large corporations have realized that relying solely on in-house research and development is not sufficient to compete effectively in today’s global markets. A robust innovation strategy today includes both internal initiatives and mechanisms to access external innovation.

Venture capitalists too have recognized these dramatic changes and are putting their money anywhere around the globe that innovators can be found. Thus, the venture capital industry plays a central role in innovation today, funding entrepreneurs who are developing disruptive innovations and acting as a bridge to large corporations.

Innovation, our sixth annual global report on venture capital, provides insight into such topics as the link between innovation and venture capital, trends in global venture capital investment, the impact of changes in accounting for acquisitions, the development of the finance function in venture-backed companies and the increasing role of cleantech in the utility industry. Throughout the report, executives from some of the top venture capital firms around the globe share their own perspectives on the lessons learned from recent industry developments and what likely lies ahead. We are grateful for their contributions.

We hope that you will find this report to be a source of valuable insight and look forward to working together with you on the global challenges and opportunities that lie ahead.

Ernst & Young
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The venture capital (VC) industry has been on a growth track since the end of 2004. Last year, venture capitalists put more than US$40 billion to work in innovative companies globally. The current cycle is characterized by substantial acceleration in cleantech investing, the maturation of the venture capital ecosystem in China and growing venture capital investments in India. Increasing investment by corporations to become active participants in the innovation pipeline is another major driver of the global venture industry (see Figure 1).

No one will argue that the primary objective of venture capital firms is anything other than to produce a high return on their limited partners’ investments. However, the means that venture capitalists deploy to achieve this end is what distinguishes venture capital. By working with entrepreneurs to generate disruptive innovation and business models, venture capitalists catalyze value creation and the emergence of new market-leading companies.

Innovation: the shifting power equation

The world is facing fundamental challenges. How will we deal with issues such as the growing demand for energy and food in the face of limited supply, aging populations and the socioeconomic challenges and opportunities brought about by advances in information technology and biotechnology? More and more, the answer to this question is innovation. With the status quo no longer tenable, the world needs new ways to generate power, grow food and interact.

The good news is that global innovation is flourishing, not only in traditional hubs like Silicon Valley, but also in new centers that have recently arisen in China, India and other emerging economies. New innovation pathways are also being created; the business of innovation is changing as much as its location is.

Under pressure from global competition and challenged by the accelerated rise of emerging markets, corporations fully understand that, to maintain or increase their competitive advantage, they must reach beyond the boundaries of their own payrolls to find the best brains and the smartest ideas, wherever they are in the world. Venture capitalists too have recognized these dramatic changes and are moving to where the talent is today: everywhere on this planet.

The most recent annual study by Booz Allen Hamilton of the world’s largest corporate research and development (R&D) spenders finds two primary success factors: aligning the innovation model to corporate strategy and listening to customers every step of the way. It is also clear, however, that corporate innovation models today cannot rely only on internal R&D but instead must implement a more collaborative, flexible and open model with many innovation partners, including venture capital funds and their portfolio companies. Such a model can be described as an “innovation network.”
Larry Huston at the Wharton School of the University of Pennsylvania has been building out and advocating the concept of innovation networks as an essential contributor to competitive advantage. Innovation networks are individuals and organizations outside a company that can form an extended organization and help it solve problems and find new ideas for creating growth. The benefits of the innovation network include an ability to combine internal and external sources of innovative ideas, greater efficiency in converting innovation into products and services and better risk management through partnerships and collaboration.

Only a few organizations, such as Procter & Gamble, Boeing, Microsoft and IBM, currently have well-developed innovation networks. While these examples are all large companies, Huston sees small companies benefiting from innovation networks as well. Indeed, with their resource constraints, small companies naturally look for outside help to address challenges. Small companies are increasingly drivers of innovation — Huston points out that they now file 35% of all patents. Big companies need innovation; small companies need market access. Innovation networks provide a structure for them to work together successfully.

The entire innovation value chain is influenced by a number of factors, ranging from culture and education to fiscal policy, regulation, government and intellectual property rights. As governments, especially in emerging markets, have come to understand better the competitive advantage of an innovation-based economy, we have seen a growing number of national innovation initiatives, more focus on establishing and enforcing intellectual property rights, gradual improvement of technology transfer processes and the rise of entrepreneurship education globally.


Pre-venture capital financing sources for innovation

With venture capital funds growing in size and the lengthening time between initial investment and exit, venture capital firms have placed new emphasis on expansion-stage and growth equity investments to put more money to work and realize returns sooner. Although there is no overall shortage of capital, the upstream movement of certain funds and the investment risk in emerging markets have reduced the capital available for seed investments in some regions.

In the United States, Europe and other mature markets, angel investors — typically former successful corporate executives or entrepreneurs — help bridge the financing gap between start-up and venture capital financing, investing individually and in professional networks.

In emerging markets such as India and China, the angel-investor base is still small, with very few professional networks, but it is growing. Along with such investors, the financing gap in these markets is being bridged by an increasing number of incubators, the launch of provincial or local government funds of funds for investments into local and foreign venture capital firms or even direct investments by science parks into entrepreneurial companies.

The incubation model has been adopted by many countries because it can be adapted to a variety of needs, from fostering commercialization of university technologies to creating jobs in the community and providing seed capital. Incubators have proved to be most important in emerging markets because creating jobs and speeding up innovation are high on their national agendas. For example, at the end of 2007, the Chinese Ministry of Science and Technology tracked 548 incubators that have helped to incubate and grow almost 20,000 technology companies. In India,
there are about 100 incubators, of which 40 are government sponsored and managed, about 50 are at universities and about 10 are privately owned. Corporations have become involved with many of these incubators to screen new technologies as part of their need to explore innovation beyond internal research and development.

The impact of the new innovation sources and pathways on venture capital

To capture global innovation opportunities and to get them off the ground throughout the entire value chain, collaboration across traditional boundaries will have to continue and accelerate. As the importance of global innovation networks increases, corporations, venture capital funds and entrepreneurs will all have to scale up best practices and lessons learned in partnerships and collaborations around the world. Innovating better will provide competitive advantage not only to large multinationals but also to leading companies in emerging markets and their investors.

Innovation networks encompassing collaboration between start-ups, venture capitalists and multinationals are even more important in emerging industries such as cleantech, which enables the business response to climate change. This fast-evolving space presents vast opportunities for emerging, innovation-based companies to provide solutions for multinationals as they face the challenges of responding to climate change-related business opportunities and the need to become more sustainable and comply with climate change regulations.

The need to leverage global innovation has encouraged many multinationals to set up core R&D centers in the technology hotbeds around the globe – whether Silicon Valley, Eastern Europe, Southeast Asia, China or India. These local R&D centers have allowed corporations to penetrate vast emerging markets and tap highly skilled but relatively low-cost talent. At the same time, they have supported the entrepreneurial spirit in their communities, attracted foreign venture capital funds and fostered the formation of local ones, all providing a foundation for a new generation of innovation-based start-ups and promoting the continuing globalization of venture capital.

Recent venture capital developments and trends

The current capital and exit environment in mature markets and increased global innovation have provided a couple of models for venture capital funds. They can expand vertically by raising a growth equity fund or a mega fund that will invest throughout the different stages of development from start-up to large growth company. Or they can expand horizontally to new geographic markets. Some funds have done both.

Sequoia Capital and NEA are two examples of mainstream funds that have taken both approaches. Sequoia Capital’s fund portfolio now includes early-stage funds in the United States, China, Israel and India, as well as new growth equity funds in China, India and the United States. NEA raised a more than US$2 billion fund that invests globally from start-up to growth equity. Other venture capital funds with new growth equity funds include Draper Fisher Jurvetson, North Bridge Venture Partners and Redpoint Ventures (see Table 1).

The need to access global innovation and accelerate collaborative models is reflected in the increase in corporate venture capital activity – both in terms of investments and in the establishment of new corporate venture capital business units. In addition to new entrants to corporate venturing, there are a number of re-entrants – corporations that had an active corporate venture capital arm in the 1990s and are re-starting their programs today. There are a variety of governance and operating models for

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**Table 1**

<table>
<thead>
<tr>
<th>Fund name</th>
<th>Amount (US$m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Draper Fisher Jurvetson Growth Fund</td>
<td>$290</td>
</tr>
<tr>
<td>Index Ventures Growth Fund I</td>
<td>$480</td>
</tr>
<tr>
<td>North Bridge Growth Equity I</td>
<td>$545</td>
</tr>
<tr>
<td>RedPoint Omega Fund</td>
<td>$250</td>
</tr>
<tr>
<td>Sequoia Capital Growth Fund III</td>
<td>$862</td>
</tr>
<tr>
<td>Sequoia Capital India Growth Fund I</td>
<td>$400</td>
</tr>
<tr>
<td>Sequoia Capital China Growth Fund I</td>
<td>$430</td>
</tr>
</tbody>
</table>

Source: VentureOne; Venture Capital Journal; North Bridge Growth Equity
corporate venture units, ranging from a wholly owned business unit that operates as a passive investor to a fully autonomous fund that carries the corporate brand but for which the corporation is only one of the limited partners.

The competition for talent and innovation has also helped to introduce new dedicated venture capital funds in the early-stage market. KPCB’s iPhone fund, Accel’s and Facebook’s fbFund and the Founders Fund by PayPal founders and other former entrepreneurs are just three examples. The fbFund will invest between US$25,000 and US$250,000 in start-ups dedicated to developing Facebook applications.

Changing global capital markets, shifting capital flows and the rise of sovereign wealth funds will change the limited partner mix in both mature and emerging markets. Sovereign wealth funds will also accelerate the creation of venture capital funds in their domestic markets such as the Middle East.

VC-backed initial public offerings

In addition to the increase in the median time between initial investment and exit, the volatility and uncertainty in the global capital markets have created significant challenges to venture capital funds this year. The United States had strong growth in VC-backed activity last year and the highest proportion of VC-backed initial public offerings (IPOs) compared with any other country. On the other hand, European venture-backed IPOs have declined sharply while China and Israel have seen strong increases.

Source: Dow Jones VentureOne

Note: For reasons of legibility, the graphs for the different areas are not in scale with each other.
As venture capital funds in China invest in later-stage companies that are revenue-generating or even profitable, China had the highest percentage of IPOs by profitable-stage companies last year while the US, where venture capital investors maintain a focus on early-stage companies, had the lowest percentage of profitable-stage IPOs.

There were numerous cross-border offerings among last year’s venture-backed IPOs. Many Chinese and Israeli companies favor NASDAQ and the NYSE while the European companies look to Europe-based regional exchanges. Even with the globalization of capital markets and with more than 90% of companies going public on their home exchanges, NASDAQ remains the global leader for venture-backed IPOs, fueled by both domestic and foreign listings.

Cleantech remained one of the hottest IPO industry sectors. China was number one in terms of the number of venture-backed cleantech IPOs and capital raised in 2007. The US has also shown steady growth in the amount raised from venture-backed cleantech IPOs. In the cleantech category, energy generation represented the largest proportion of IPOs and the largest amount raised last year, and energy efficiency emerged as a fast-growing segment.

Emerging markets

With many global venture capital funds raising larger funds and focusing on later-stage investments, there is a vital need in emerging markets for funds focused on early-stage investments to support and sustain the local venture capital ecosystem. Emerging markets are seeing two trends: the establishment of dedicated seed funds that have mainstream funds and corporations as limited partners, and collaboration between governments and local early-stage funds.

In India, Seedfund was established with limited partners including Motorola Ventures, Mayfield, Reliance ADA Group, Sierra Ventures and others. India’s National Association of Software and Services Companies launched a US$25 million fund in collaboration with the ICICI Knowledge Park. In China, the China Development Bank and the Tianjin Binhai New Area signed an agreement to launch a venture capital fund that will provide capital to new technology start-ups in northern China.

Emerging countries are likely to receive the benefits of foreign venture capital. In Russia, seed and venture capital funds are now a reality. Given the size of Russia’s population, its growing need for new infrastructure, fast-growing standard of living and large pool of scientists and engineers, Russia may become the next wave for foreign corporate investors and venture capitalists. The development of the Russian venture capital ecosystem would likely spill over to the benefit of neighboring countries, such as Ukraine, the Baltic States, Bulgaria and Romania.

It is likely that foreign venture capital investors will encounter many of the challenges faced in other emerging markets: differences in business culture, a less-developed legal system and a level of unpredictability in the government's impact on business. The lessons learned in the venture capital approach to China will likely prove valuable in Russia.
In the last couple of years, several investments were made in Russia by well-known corporate investors and venture capital funds such as Intel Capital, Index Ventures, Benchmark Capital and Cisco. Last year, Cisco announced that it would pursue investment opportunities not only in Russian emerging technology companies but also investments in local teams as a limited partner. Also during the year, the Russian government established the Russian Venture Company to provide capital to venture capital firms that create funds and invest in Russia, similar to Israel’s Yozma funds model, which sparked the development of the Israeli venture industry in the early 1990s.

**Cleantech**

The business transformation in response to climate change continues to create significant opportunities for venture-backed cleantech companies, which, according to Dow Jones VentureOne, amounted to more than US$3.0 billion in 221 financing rounds in China, Europe and the United States in 2007. That compares with US$416 million invested in 95 financings in 2002, showing the significant growth in cleantech investments in recent years. The largest share of cleantech investing occurs in the United States where, last year, US$2.5 billion was invested, representing 8% of the country’s total venture capital investment. It is expected that investments in clean technologies will continue to increase, not only in the developed markets but also in the developing markets, especially China and India.

**Outlook**

Venture capital has always been one of the most important catalysts of innovation. We have seen venture capital expand globally as new centers of innovation have cropped up around the world. With innovation the new byword for corporate competition and the solution that is looked to for many global challenges, venture capital firms will play an important role in the innovation networks of companies both large and small. And with more than US$230 billion in new funds raised globally since 2001, the venture capital industry is well positioned to continue fueling innovation for the long term.

While the global credit crunch and economic downturn in the United States will certainly be felt in the venture capital industry, the fundamental drivers of innovation, as well as the need for it, will only accelerate, providing venture capitalists with opportunities both to change the world and to give their limited partners attractive returns.

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**Key insights**

- Innovation is the new currency of competition.
- The innovation network model is becoming an important source of competitive advantage.
- Early-stage VCs are adding growth capital funds focused on mature and emerging markets.
- The early-stage financing gap is being bridged in China and India with incubators and specialist seed funds.
- Russia shows growing potential for venture capital investment.
- Climate change global drivers are fuelling cleantech investment and innovation.
Sudhir Sethi is founder, Chairman and Managing Director of IDG Ventures India, a US$150 million early-stage technology venture capital fund backed by IDG, the world’s largest IT-focused media company. He founded IDG Ventures in 2006 after 26 years in the technology and venture industry.

Ernst & Young: What were your surprises in the last 12 to 18 months?

Sudhir Sethi: When we raised our US$150 million fund and started operations in September 2006, we focused on early-stage technology investments. Our focus was and continues to be in software products and services, manufacturing and engineering, medical electronics, digital consumer and telecom/semiconductor sectors.

Our first surprise was the pace at which funds are vacating the venture investment space and moving increasingly to the growth investment stage. Our intention is to dominate the venture-stage technology-focused sectors as an early-stage fund.

Our second surprise was the extent of competition in our sectors; except for the digital consumer space (internet/mMobile VAS), we really do not face significant competitive pressures in our other sectors.

Our third surprise was on valuations; we find valuations in the venture stage of the technology sector extremely attractive.

Our fourth surprise was the maturity of the entrepreneur who today values relationships and value-add from a venture investor; the fact that the IDG Ventures team of six investment professionals has significant domain, operating and venture experience sets us apart in the industry. This, combined with the IDG network value-add, is a significant differentiator.

In the past 18 months, we also found that venture investments in India require business model innovations to create companies and not just fund conventional deal flow; hence, we funded ConnectM, a spinout from Sasken; Aujas, a managed security-services pure play, through an EIR Program; and 3D Solid Compression, which was incubated by Stanford and the Indian Institute of Science, Bangalore.

Ernst & Young: What’s the potential impact of the uncertain capital markets on the VC ecosystem?

Sudhir Sethi: The key potential impacts of the uncertain capital markets on the VC ecosystem can be classified under:

a) Fund-raising and general partner/team quality
b) Deal flow
c) Valuations
d) Exits
e) Co-investments

Limited partners, as we go forward, will become extremely choosy about the quality of the teams they back in partnerships. Very few general partners (GPs) in India have what I call a full-cycle GP experience of deal flow generation, investment, monitoring, exits and fund-raising. In essence, first-time funds, especially with teams who have not worked together, will find it difficult to raise capital. However, second-time funds with a clearly articulated strategy of investment, with teams who have a partnership having full-cycle venture experience, will get funded relatively more easily.

Deal flow is expected to slow down, with new start-up ventures reducing due to lower entrepreneurial inflow from corporates to start-ups. However, I do expect the quality
of deal flow to go up. In addition, we expect deal flow to be more spread across cities in India including tier-two cities like Pune, Coimbatore, Mysore, etc.

I have already seen significant lowering of valuations in seed and early-stage deals. This trend is likely to continue.

Another significant impact of the uncertain capital markets is the increased incidence of co-investments. Out of our seven investments so far, four are with co-investors (Erasmic, e-Planet Ventures, Softbank and Sasken).

As far as exits are concerned, the dependence on IPOs will reduce significantly; companies have to be built increasingly for exit by acquisition. This also implies founding teams to build significant disruptive business models and technology differentiators to command higher valuations at exit.

Ernst & Young: What have been the key insights and takeaways from the markets, mature and emerging, you have invested in?

Sudhir Sethi: In the past 10 years, I have invested in India, in the USA with India as a back end [development location] and in Singapore/Malaysian companies looking at India as a market.

My first key learning in an emerging market like India is to invest in companies based in India where the founders know the Indian environment very well, especially since India is a significant market for our investee companies as compared to yesteryears, when the US used to dominate as a market for India-based companies. Hence, we do not invest in companies if the founding team is based in the USA or anywhere outside India.

The second key learning is not to transport a USA investment model into India; for example, an investment into the internet space in the USA assumes a mature online market whereas an investment in the internet space in India will demand a significant market expansion based on an offline model as well.

Thirdly, in addition, since the India entrepreneur in all probability cannot build a scaled company with India as a market alone (unlike the USA entrepreneur), it is essential for the founding team to have cross-border experience in business development. The investment bar in an emerging market like India is thus higher. Incidentally, cross-border experience can be India-China and not India-USA alone.

With India’s GDP growing at 8.5% and the technology industry still growing at above 25% per annum, attrition is a bigger issue in India than in the USA. In addition, employee stock ownership plans (ESOPs) are not valued by employees as a replacement for cash compensation. Hence, ESOP vesting and grants find different treatment by our investee companies; we tend to have back-loaded vesting for ESOPs as compared with straight-line vesting with a view to encourage retention.

Ernst & Young: What are the top three challenges for the VC industry in the next 12 to 18 months?

Sudhir Sethi: The venture industry challenge in India for the next three to four years is one of opportunity management.

The Indian venture industry can support more venture funds; an increasing number of limited partners (LPs) we have met over the past 18 months have conveyed to us to continue with our focus on venture investments. First-time funds will find it difficult to raise capital; second-time funds would be able to raise capital faster.

We have increasingly found disruptive product companies to invest in, compared with the traditional services model. Interestingly, five of our seven investments are in product companies; these include Manthan, Kreeda, iViz, Perfint and 3D Solid Compressions. In the 700+ deals we have seen so far, products form 46% of our deal flow. We expect this healthy trend to continue.

Venture funds will face a challenge of retaining their teams with more private equity funds being formed. This can only be met through increasing responsibility to associates and principals and sharing gains with the full team rather than only amongst GPs.

Ernst & Young: What advice would you give to an entrepreneur who is building a company today?

Sudhir Sethi: My first advice to entrepreneurs is to choose their investor based on track record and value-add. It is important for the entrepreneur to ensure the VC is worthy of sitting on his board and is his “first-stop mentor.” The VC and entrepreneur relationship in early venture funding is for three to five years; entrepreneurs must ensure chemistry and trust as significant criteria in addition to capital and valuations.

In second place is the quality of the team. Entrepreneurs/founding teams must build smart teams who can scale and also keep the flock together. Good teams can weather business down-cycles; bad teams find it difficult to grow in good cycles.

In addition, entrepreneurs must focus on building value and valuation from an exit point of view. In a tough IPO market, scale, differentiation and plain old profits are critical to a successful exit for investors and founders.

The growing importance of venture capital
Global venture capital landscape

Canada
2007 investment profile
Investment: US$823m/91 rounds
Median round size: US$6.0m
Q1’08 investment: US$123m/16 rounds
Note: IPO and M&A data unavailable

United States
2007 investment profile
Investment: US$30.3b/2,695 rounds
Median round size: US$7.6m
VC-backed IPOs: US$6.7b raised/74 IPOs
Median time to IPO: 6.8 years
VC-backed M&As: Median US$93m deal value/435 M&As
Median time to M&A: 6.1 years
Q1’08 investment: US$6.8b/603 rounds

Europe
2007 investment profile
Investment: US$6.6b/991 rounds
Median round size: US$4.9m
VC-backed IPOs: US$1.0b/39 IPOs
Median time to IPO: 6.3 years
VC-backed M&As: Median US$28m deal value/271 M&As
Median time to M&A: 6.6 years
Q1’08 investment: US$1.7b/180 rounds

Note: IPO and M&A data unavailable
### Table 2
Billion-dollar global investment hotbeds

<table>
<thead>
<tr>
<th>Hotbed</th>
<th>2007 investment (US$)</th>
<th>2007 financing rounds</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Silicon Valley</td>
<td>9.9b</td>
<td>818</td>
</tr>
<tr>
<td>2 Southern California</td>
<td>3.8b</td>
<td>272</td>
</tr>
<tr>
<td>3 Boston</td>
<td>3.7b</td>
<td>326</td>
</tr>
<tr>
<td>4 New York metro area</td>
<td>2.1b</td>
<td>204</td>
</tr>
<tr>
<td>5 United Kingdom</td>
<td>2.1b</td>
<td>267</td>
</tr>
<tr>
<td>6 France</td>
<td>1.5b</td>
<td>236</td>
</tr>
<tr>
<td>7 Israel</td>
<td>1.5b</td>
<td>209</td>
</tr>
<tr>
<td>8 Seattle</td>
<td>1.4b</td>
<td>111</td>
</tr>
<tr>
<td>9 Texas</td>
<td>1.1b</td>
<td>95</td>
</tr>
</tbody>
</table>

Source: Dow Jones VentureOne

### Table 3
Next-tier global investment hotbeds

<table>
<thead>
<tr>
<th>Hotbed</th>
<th>2007 investment (US$)</th>
<th>2007 financing rounds</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 Potomac*</td>
<td>982m</td>
<td>99</td>
</tr>
<tr>
<td>11 Beijing</td>
<td>868m</td>
<td>95</td>
</tr>
<tr>
<td>12 Germany</td>
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<td>113</td>
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<td>13 Shanghai</td>
<td>830m</td>
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<tr>
<td>14 Canada</td>
<td>822m</td>
<td>91</td>
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<tr>
<td>15 Research Triangle**</td>
<td>784m</td>
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<td>16 Switzerland</td>
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<td>17 Bangalore</td>
<td>335m</td>
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</tr>
<tr>
<td>18 New Delhi</td>
<td>316m</td>
<td>23</td>
</tr>
</tbody>
</table>

Source: Dow Jones VentureOne

* Maryland, Virginia, Washington, D.C.
** North Carolina

The growing importance of venture capital
Jean-Marc Palhon has more than 20 years of professional investment experience. He was the founder of OTC Asset Management and is currently its CEO. Previously, he founded and served as President of Active IPO.

Ernst & Young: What developments in venture capital in France and in Europe do you anticipate in 2008?

Jean-Marc Palhon: Despite the economic after-effects suffered in the United States as a result of the subprime crisis, activity should remain dynamic in Europe, and in France in particular. In fact, funds are still looking for target portfolios. Moreover, in France, activity has been boosted by the favorable taxation under the 2007 amended Finance Act. This law allows a special tax deduction on the wealth tax (ISF — impôt sur la fortune), in the context of investment in venture capital funds for investment in innovative companies (FCPI — Fonds commun de placement dans l’innovation) — and in venture capital investment funds (FCPR — Fonds commun de placement à risque), the vehicles used by French venture capitalists.

There are increasing numbers of applicants for financing. However, we are confronting the problem of valuations, which, having grown for two years, are reaching levels that are disconnected from reality.

Further, while the indicators (taxation, individual investor confidence, fund performance) are still thriving today, we should remain cautious as they could always move in the other direction with no warning and reverse the trend.

Ernst & Young: Can you specify the impact we can expect from the special tax deduction on the ISF?

Jean-Marc Palhon: This decision is very positive for the French venture capital sector. However, two obstacles remain: the absence of the implementation decree and the European regulations that limit aid to companies. While these two points remain unresolved, funds cannot launch “ISF offers” as such, and it is not certain when this issue will be clarified. Once these questions are resolved, there will also be a need to handle management constraints, i.e., possibly voluntarily limiting VCs’ fund-raising according to investment potentialities.

In addition, by pushing funds to have a strong and steady activity (quotas for new investments), this law will reinforce the issue of the critical size of funds. Indeed, substantial human investment is needed to follow these new lines.

Ernst & Young: You mentioned the rise in valuations. What accounts for this?

Jean-Marc Palhon: The rise is sustained by the gap between technological crises and the reactions of the players involved. We saw a technological crisis in 2001–2002, when many funds froze their investments. Only in 2006, once the economic outlook had been more favorable for around a year, did the funds start wanting to invest again — all at the same time, of course. This resulted in a rise in valuations which, while they didn’t reach the level of a new bubble, also didn’t express a growth proportional to the real economic value of certain portfolios. I anticipate and hope to see a weakening or even a reversal of this trend in 2008, since it is highly likely that more funds will refuse to endorse these excessive valuations.

Ernst & Young: Speaking of the internet, in your opinion, what will be the sectors that really take off in 2008?
Jean-Marc Palhon: To my mind, the internet will remain a growth area in 2008. This has been true since the end of the bubble. Further, cleantechs are the new fashionable sector. OTC is carefully watching opportunities in this sector. However, the problem of valuation is even more exacerbated there than in other sectors, particularly in the field of renewable energy, which makes us particularly careful and leads us to be able to turn down a certain number of deals.

Ernst & Young: As for exit strategy, what do you anticipate for 2008, particularly considering the questionable health of the current stock market?

Jean-Marc Palhon: It is clear that the IPO window has mostly closed. However, this does not appear to me to be a major problem because industrial transfers are often more profitable. In fact, the valuations are often higher on the stock exchange, but the exit strategy is more arbitrary.
Perspective from Germany
Interview with Dr. Helmut M. Schühsler

Ernst & Young: What surprises did you experience in the last 12 to 18 months?

Dr. Helmut Schühsler: I expected that the buyout party would end at some point, just as the venture capital party ended in the year 2001. However, I didn’t think the end would be triggered by the subprime credit market. In fact, the whole credit crisis that was triggered by subprime mortgage lending was rather a surprise.

Secondly, I was surprised and, honestly, appalled at how much German regional banks lost in the course of the credit crisis. I do not think that their political task is to invest money in collateralized debt obligations (CDOs) backed by American mortgages. I have always believed their task and objective were to help regional businesses establish themselves and grow. If you imagine how difficult the banks make it for local entrepreneurs when they ask for 50,000 or 100,000 euros as a loan to build a business, you can note just how out of balance the credit market has become.

The last surprise was how biotech sector stocks have fallen off the cliff – with no apparent reason, except for a precious few (like Paion or GPC Biotech in Germany) where the downturn was linked to bad clinical trial news. I don’t know what happened, and I don’t know why that is. Investors are worried about the sector. It is for us to find new ways and build trust and confidence back.

Ernst & Young: What is the potential impact from this uncertain capital market on the VC ecosystem?

Dr. Helmut Schühsler: It’s a difficult situation. Speaking only for biotech, we could take the IPOs in the US last year as an example. There were about 30 to 35 in total. Five of them were up from their IPO price as of March 2008. The rest were below the IPO price – between 5% and 90% below! When you consider this performance, combined with the uncertainties introduced by the credit crisis, I think the IPO market is gone for the time being. This does not have a short-term impact on our investments or on our companies’ operational behavior, but it does influence the venture capital industry’s portfolio exit strategies in the future. It also draws into question our general assumption that we can make exits to the capital markets a key objective in building a company.

Ernst & Young: What have been the key insights and takeaways from the markets, mature and emerging, for venture capital?

Dr. Helmut Schühsler: I think that in the US, early-stage businesses are still going strong, especially in Boston, Silicon Valley and San Diego. The US VC business is healthy to the point of being overfunded in many areas. There are a lot of VCs and many with substantial amounts of newly raised money. Competition is a dominant force that drives prices up.

In Europe, on the other hand, I think there is a different problem. The industry is not high on the list of the LPs at all, and it’s difficult to defend your existence as a European venture capitalist in general. This is based not only on perception but also on actual performance numbers. It always takes longer in Europe, and European valuations have been following...
the US market in a peculiar way: in buoyant markets it takes a year for Europe to follow on the way up. In down markets Europe follows practically in sync with the US. This leaves often only months or weeks to sell at a good price, in a positive and optimistic environment.

I still believe that the interest in Europe is coming back with some investors as they realize that this is an underserved market with a small group of people who actually made money in the past and low levels of competition. I believe that there is a group of US firms that are superstars: they are the Sequoias or Accels or Kleiner Perkins of the world. They have proven able to make outsized returns in most of their funds from their involvement in companies like Google and Amazon. Below that very small group, the next best US VCs and the top European VCs have comparable performance. It’s just that this group of top VCs is very small in Europe.

Some financial statistics, like the ones EVCA is publishing every year, based on the Thomson Financial data, can paint a very sad picture of European venture capital. However, one has to consider that these numbers include many venture firms that were small, often regional, only existed from 1997–2003 or thereabouts, and lost most of their committed capital in the wake of the New Economy correction from 2001 onwards. I personally believe that these often-defunct firms distort the statistics and are totally irrelevant to the question of what European venture capital is today. We need to find a way to isolate these effects and reflect the true picture of European venture capital, namely those firms that international LPs are truly interested in.

Ernst & Young: What are the top three challenges for the VC industry in the next 12 to 18 months in Europe?

Dr. Helmut Schühsler: In Europe, I believe one of the major challenges is the creation of pan-European transactional financing networks. There are a handful of people who work transnationally in Europe. This collaboration is absolutely vital in a market that needs experience and size. Also, as the exit markets disappear, we need to overcome the challenge of creating a more active M&A scene in Europe and be more outgoing to the large European corporations. And the third is we need to “super size” the big VCs – the good ones need to become much bigger.

We cannot compete with the Americans on spending power. Effectively, we in Europe are currently becoming the early-stage technology and product providers for the US biotech and pharmaceutical industries as we are not able to build our companies to a stage where we actually reap the rewards of the many years of hard work. Although syndicates help, they are not a general solution. Having more than five professional investment groups involved in any one company is not a recipe for smooth and focused board work or shareholder relations. You want the group that drives companies from the financial side to be reasonably small. Therefore, we need bigger funds in this industry.

The innovation pipeline in Europe is solid. Bigger European funds will enable us to increase the leverage of this innovation pipeline and to assist more entrepreneurs to raise capital as they move along the journey from start-up to market leader. The European markets have a tremendous amount of potential, offering for example both mature and emerging markets on the same continent.

Ernst & Young: What advice would you give to an entrepreneur who is building a company today?

Dr. Helmut Schühsler: The key focus in building a successful company is to have a great management team. In Europe, we are becoming increasingly more consistent with the American market. If you look at which deals are oversubscribed in both markets, it doesn’t matter that much what stage the company is in. The team is a number one priority. Also, I think entrepreneurs need to conduct a real due diligence into the strategy of their investors, e.g., into the fund sizes, the age of the funds where the investment is coming from, etc., before entering into the transaction. Investor interests need to be laid open and aligned. I think entrepreneurs need to realize that who you work with and who you bring on board are almost as important as the operational management team.

Lastly, in this world where legal battles are being fought between companies concerning IP, an entrepreneur needs to evaluate if and when IP is important for his or her business. Of course, it is not always important, but knowing which is which is key. When IP is important, it should be solid and protected. That means getting all the IP on board and doing the respective market research to strengthen the case.»
The business impact of changes in accounting for acquisitions

In January 2008, the International Accounting Standards Board (IASB) released its much-publicized and controversial revisions to accounting for business combinations and accounting for transactions with non-controlling interests (formerly minority interests). The revisions will have a significant impact on almost all future acquisitions, and it will be imperative for management, including venture capitalists, to understand how these changes impact them so they can negotiate and structure the transaction and payments to avoid any unpleasant surprises. While these revisions will not take effect until annual periods beginning on or after 1 July 2009, acquisitions negotiated prior to this date will need careful evaluation – particularly if completion is expected after that date.

Applying the new requirements will mean, in many cases, either that goodwill will be lower or that the reported performance of the group will decrease or become more volatile – both in the year of acquisition and in subsequent periods. All of this could have an impact on debt covenants and management

Table 4
Summary of key changes and their impact on goodwill and reported results

<table>
<thead>
<tr>
<th>Summary of change</th>
<th>Goodwill</th>
<th>Time/cost to implement</th>
<th>Volatility</th>
<th>Earnings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Option to measure noncontrolling interest at its fair value</td>
<td>(a)</td>
<td>↑</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Accounting for changes in ownership interests of a subsidiary (that do not result in loss of control) as an equity transaction</td>
<td>(a)</td>
<td>–</td>
<td>–</td>
<td>(a)</td>
</tr>
<tr>
<td>Contingent consideration recognized at fair value at the date of acquisition, with subsequent changes generally reflected in profit or loss</td>
<td>↓</td>
<td>↑</td>
<td>↑</td>
<td>Future</td>
</tr>
<tr>
<td>Expensing acquisition costs as incurred</td>
<td>↓</td>
<td>–</td>
<td>–</td>
<td>Current</td>
</tr>
<tr>
<td>Reassess the classification of all assets and liabilities of the acquiree</td>
<td>↓</td>
<td>↑</td>
<td>↑</td>
<td>–</td>
</tr>
<tr>
<td>Separately account for reacquired rights of the acquirer and preexisting relationships between the acquirer and acquiree</td>
<td>↓ or ↑</td>
<td>↑</td>
<td>↓</td>
<td>–</td>
</tr>
<tr>
<td>Contingent liabilities only reflect those that are present obligations arising from past events</td>
<td>↓</td>
<td>↑</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Recognize gains or losses from measuring initial equity holdings in step acquisitions at fair value</td>
<td>↑</td>
<td>↑</td>
<td>–</td>
<td>Current</td>
</tr>
<tr>
<td>Separately account for indemnities related to liabilities of the acquiree</td>
<td>↓</td>
<td>–</td>
<td>↓</td>
<td>–</td>
</tr>
</tbody>
</table>

Note: (a) The impact on goodwill and reported results is dependent on both the choice of accounting policy applied in the past when acquiring the noncontrolling interest and the option chosen to measure noncontrolling interest when applying the revised standard.
remuneration and other arrangements tied to the performance of the group, and will require management to reexamine them. Table 4 summarizes the most significant changes introduced and their potential impact.

Every acquisition will be affected by the requirement to expense transaction costs (such as lawyers’ and advisors’ fees) as they are incurred, rather than treating them as a part of the cost of the acquisition. This change reflects the underlying premise that the transaction should be accounted for at the fair value of the consideration rather than as being a “cost accumulation” exercise.

Many acquisitions are structured such that additional consideration may be paid in the future, dependent on the outcome of future events, such as a specified level of profit or a future listing. The revisions require that the fair value of such additional consideration is determined at the date of acquisition. However, unlike today, any subsequent changes in this value will not be adjusted against goodwill; rather, they will be expensed. In most cases, it is likely that this contingent element will meet the definition of a derivative liability. As such, it will need to be remeasured to its fair value at each reporting date subsequent to the acquisition, with all changes recognized in the income statement, thereby introducing greater volatility into the reported results. As it is only the fair value at the date of acquisition that is reflected as consideration for the business, greater emphasis must be placed on getting this fair value right. This can be a time-consuming and possibly costly exercise, requiring a significant amount of management input.

In other cases, the success of the business is dependent on the role played by former owners or employees and, therefore, additional payments may also be dependent on continued employment. Such arrangements are often referred to as “earn-outs” and are common elements of transactions undertaken by venture capitalists. Differing practice has developed as to whether this should be accounted for as consideration for the business or as management remuneration. The revised standard has introduced a clear test that removes this ambiguity and requires that, if the individual would forfeit these payments if he or she terminated the employment, the additional payment will be classified as compensation costs rather than consideration for the business. This means that in many of the arrangements entered into today, a greater element of

Key insights

- Revisions to International Financial Reporting Standards will result in changes to the way business acquisitions will be negotiated and structured.
- Debt covenants, management remuneration and other arrangements linked to the performance of the group need to be reevaluated due to the increased volatility expected in performance subsequent to acquisitions and increased expenses.
- Clearer guidelines now exist for determining if contingent payments are really management compensation costs rather than consideration for the business.
- Business acquisitions can give rise to gains or losses being recognized at the date of acquisition, affecting reported performance.
- Choices available to management to value noncontrolling interests need to be carefully evaluated on a transaction-by-transaction basis.
contingent payments will be accounted for as compensation costs. Consequently, management will need to give careful consideration to how any contingent payments are structured. The impact on the ability to meet covenants is too great to ignore.

Another controversial change relates to when, after gaining control, less than 100% interest is held. The IASB stepped back from its original proposal to require any remaining non-controlled interest (NCI) to be measured at its fair value and has allowed a choice: NCI may be measured at its fair value or at the share of the fair value of the net assets acquired, consistent with today’s practice. But how much of a “concession” this really is, is debatable – particularly when it is management’s intention to acquire the remaining interest in the future.

If management measures NCI at its fair value, it will effectively result in goodwill relating to the entire business (not just the percentage acquired) being recognized. If management decides to stay with today’s method and measure NCI at the share of the fair value of the net assets acquired, goodwill will be significantly lower. While, on the face of it, this doesn’t appear to be a big deal, further consequences of this choice become evident if the outstanding noncontrolling interest is later acquired.

When management acquires the outstanding interest, no additional goodwill is recorded as the revised standard views any transaction with the noncontrolling interest as a transaction between shareholders and, therefore, it is reflected only in equity. This contrasts significantly with practice today in which many entities have chosen to account for such transactions as a purchase transaction, thereby increasing goodwill. If management does intend to gain a 100% ownership interest, it will be better off recognizing NCI at fair value when gaining control of the entity – even though it can be a time-consuming and expensive accounting exercise. The choice is made for each
individual investment, rather than being an accounting policy choice, and will require management to consider its longer-term objective for each investment, which will then be obvious to the market.

A common practice in Europe is that, upon or after gaining control of an entity, the parent company enters into put options over noncontrolling interests. How these options are accounted for was one of the biggest debates throughout 2006 and 2007. The revisions, however, contain nothing specific. Although the changes will help reduce diversity in practice, they do not help to answer the basic question that impacts the net asset position: will creating a liability for the option mean that noncontrolling interest is reduced? All companies will need to reconsider their accounting in this area although some diversity is likely to continue until the IASB addresses this matter.

However, there is one bright side to these amendments. Where an investor buys a controlling stake in an entity over a period of time, at the point that control is gained, all prior interests will be remeasured to fair value. The effect of remeasurement is recognized in the income statement; hence, it is quite conceivable that a business acquisition can give rise to a gain. The philosophy behind this is that the nature of the investment has changed – from a mere investment to a business – and thus this economic event gives rise to a remeasurement. Conversely, upon sale of a controlling interest, any retained interest is remeasured to fair value, and this becomes the new “cost” for future periods – again reflecting a change in the nature of the investment. This fair value is also used to determine the amount of gain or loss on disposal of the business, which may in some cases reduce the gains on disposals that are currently reported.

As we see in many cases where new standards are introduced, disclosures will be more extensive – particularly with respect to how fair value was determined for contingent liabilities acquired. Management will need to ensure that the disclosures are informative without giving away too much information to be detrimental for future negotiations.

All of this means future acquisitions need to be carefully looked at to avoid any surprises when accounting for the acquisition and the future performance. In many cases, restructuring the transaction differently or renegotiating the terms can prevent these surprises. While the IASB worked with the US Financial Accounting Standards Board (FASB, the US standard-setter) to develop these revised standards, they failed to agree on everything, and some fundamental differences still exist, of which US foreign private issuers must be aware, particularly if they decide to early adopt these new requirements. In Ernst & Young’s publication *Business Combinations and Consolidated Financial Statements – How the changes will impact your business*, we discuss the effect of the changes to the standards in more detail and summarize the key differences that will remain with US GAAP.
Perspective from Israel
Interview with Eddy Shalev

Founder and Managing Partner of Genesis Partners, Eddy is one of the best-known figures in the Israeli business community. Since the beginning of Israel's venture capital industry, Eddy has focused on private-equity investments in the high-tech sector and has played a key role in several high-profile success stories, including Fundtech, Paradigm Geophysical and Orbot Instruments. Eddy is currently on the board of Aternity, Cloverleaf Communications, Negevtech and WorkLight.

Ernst & Young: When you look back at the venture capital landscape in 2007, what were the surprises and lessons learned that stood out for you?

Eddy Shalev: Surprise is not the right word. I would say, however, that I was expecting the IPO market to be more active than it has been lately. I was expecting greater appetite for tech-related IPOs. I think the IPO market will return when investors shake off some of their concerns about macroeconomic growth and recognize that innovation has been — and will be — a key driver of wealth creation. There is a strong argument, I think, that in an environment of macroeconomic uncertainty, investors will increasingly look to technology companies as more reliable generators of growth, and this should be good for VCs and good for our portfolio companies in the long run.

Ernst & Young: What’s the potential impact of the uncertain capital markets on the VC ecosystem?

Eddy Shalev: The impact of weak capital markets on the way we do business has been substantial. VCs are relying on acquisitions as an exit route more than ever before. But uncertainty also means that acquirers can be more cautious, meaning that time-to-exit is longer and, consequently, portfolio companies will require more private funding before they are able to achieve an exit.

Another trend we are seeing is the shift towards Europe and Asia as increasingly important end-markets. The United States is still the number one market for most Israeli start-ups, but Israeli entrepreneurs are increasingly taking a more global perspective and developing products for other markets, including Europe, developed Asia and emerging markets. If you take a long view, moderate adjustments in public markets can be good for venture capital because they force both entrepreneurs and VCs to focus on true innovation — on companies that will create substantial value and will be positioned for large exits even in down markets.

Ernst & Young: What have been the key insights and takeaways from the markets, mature and emerging, you have invested in?

Eddy Shalev: We are focusing, as always, on companies that address big market needs. Increasingly, we are finding these big needs in the consumer market. Genesis Partners continues to invest broadly in information and communication technologies, but we are particularly excited about companies that sell components or subsystems that go into consumer products, such as the gaming industry and mobile handset industry. Consequently, our ecosystem has expanded beyond the traditional US multinationals to the large consumer-electronics makers, many of which are based in Asia.

In recent years, we have seen a new generation of Israeli entrepreneurs ready to build truly global businesses that are based in Israel and not necessarily US-oriented. Many consumer-electronics start-ups in our portfolio, such as Oree, PrimeSense or Modu, are highly focused on key decision-makers based in Asia or in Europe, as well as in the US. These companies are establishing a presence in whatever markets they
need to, they are hiring talent from around the world and they are building a robust ecosystem that can support their market penetration efforts.

We are also seeing a willingness on the part of VCs and entrepreneurs to build businesses outside of the traditional areas of high technology. This includes consumer electronics, but it also includes some areas of environment, energy and industrial applications where Israeli technology is also world-leading. The clear global demand for green technology and renewable energy is not a fad, and we see in that a large market in which we want to participate as investors.

**Ernst & Young:** What are the emerging challenges and opportunities for the VC industry in 2008?

**Eddy Shalev:** As of now, 2008 seems to be shaping up to be an even more challenging year than 2007. VCs will need to sustain private companies much longer with limited resources. The good news for us in Israel is that the appetite of multinationals to acquire Israeli technology is greater than ever. I think this bodes well for the Israeli VC industry into the future.

**Ernst & Young:** What advice would you give to an entrepreneur who is building a company today?

**Eddy Shalev:** The best advice I can offer is this: think big. Focus on building a company that is addressing a big market rather than a niche solution. Also, plan on raising no more than US$20 million to US$25 million before the company becomes profitable – otherwise, the VC model can become more challenging.
Nurturing growth

Perspectives on developing the finance organization in emerging technology companies

Today’s world is undeniably a smaller place. Increasing globalization makes businesses increasingly complex, fast paced and intensely competitive, leaving start-up companies a very narrow window of opportunity to get established and flourish. The finance organization plays a pivotal role in an emerging technology company’s success. It must get started early, develop rapidly, extend its reach as the company grows and respond quickly to change. As the company evolves from start-up to market leader, the finance function will combat converging international markets, evolving regulation, more demanding investors and unrelenting business competition.

To provide insight into the challenge of growing the finance function to keep pace with company growth, Ernst & Young undertook a study, Nurturing Growth, that asked technology company executives and venture capital (VC) investors around the world to share their experiences and lessons learned about building effective finance organizations.

Nurturing Growth draws on the responses of 144 global online survey participants – predominantly chief financial officers (CFOs) and directors of finance from private, venture-backed technology companies in Europe and North America. The participant pool also includes executives from Israel, India and the Asia-Pacific region. In addition, the study incorporates insights from in-depth interviews with 12 technology executives around the world, representing companies with combined market capitalization of US$80 billion at 30 June 2007, and 4 venture capitalists whose firms are investors in 285 companies with a combined total of more than US$5 billion in estimated active funds raised.

Key challenges

Our research reveals that the finance teams of emerging technology companies face challenges on a number of fronts as they attempt to develop effective organizations (see Table 5).

Successfully responding to all of these pressures can deliver results in multiple dimensions. For instance, complying with evolving controls and reporting requirements is not just a legal requirement; it better positions finance to provide input to the business decision-making process. Underpinning the company’s strategy and operations with sound financial data not only enhances the company’s chances of success, it also gives the finance team a greater stake in that success.

Finance organizations must be more robust to handle it all. Responsibilities have expanded in key areas such as corporate conduct, business strategy and board relations. Today, CFO is as prominent a position as it is pivotal. Many CFOs manage departments other than finance.
Table 5

<table>
<thead>
<tr>
<th>Challenges</th>
<th>Findings from survey of emerging technology company CFOs</th>
<th>Executive perspectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Addressing the financial complexity of going global – right from the start</td>
<td>92% said they are already selling internationally or will do so within 12 months.</td>
<td>“Technology companies generally are getting more global, faster – at an earlier stage.”</td>
</tr>
<tr>
<td>Preparing early to comply with stricter regulations on controls and reporting</td>
<td>23% said they are preparing for an initial public offering (IPO), triggering an increase in the finance team headcount.</td>
<td>“In the past, you could hire a CFO 3 months before going public. Now you need a minimum of 9 and probably 12 to 18 months.”</td>
</tr>
<tr>
<td>Managing a longer and more difficult process to finance the next stage of growth</td>
<td>64% said they are in late-stage, venture-capital financing (Round C or later).</td>
<td>“The minimum [revenue] size requirement for an IPO has gotten much larger.”</td>
</tr>
<tr>
<td>Satisfying a growing internal appetite for business advice and data</td>
<td>65% of CFOs said strategy and corporate development will be among their top three time allocations within a year.</td>
<td>“Now everyone from the sales team to the CEO is expecting advice.”</td>
</tr>
<tr>
<td>Hiring and retaining finance talent – which is in short supply</td>
<td>In addition to salary, incentives include stock options, bonuses, performance-based incentives, flexible work arrangements and restricted stock grants.</td>
<td>“This is like 2000, with the scarcity of engineers during the internet boom. Now we are seeing it with finance – signing bonuses and all.”</td>
</tr>
</tbody>
</table>

Figure 3
CFO hiring plans in the coming year

<table>
<thead>
<tr>
<th>1 to 3 FTEs</th>
<th>4 to 6 FTEs</th>
<th>7 to 12 FTEs</th>
<th>&gt;12 FTEs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current</td>
<td>Expected in 12 months</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yellow</td>
<td>Gray</td>
<td>Yellow</td>
<td>Gray</td>
</tr>
<tr>
<td>47%</td>
<td>34%</td>
<td>30%</td>
<td>27%</td>
</tr>
<tr>
<td>30%</td>
<td>30%</td>
<td>19%</td>
<td>4%</td>
</tr>
<tr>
<td>9%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Ernst & Young Technology Survey, 2007
Note: FTEs=full-time equivalents
Most technology companies conduct business globally from the start.

Building the finance organization usually involves securing an experienced controller at the start and then hiring a well-rounded CFO much earlier in the company’s life than was once the norm. From there, the team must be broadened to include significant experience in financial planning, accounting, investor relations and other functions. Most of the emerging technology company CFOs recently surveyed by Ernst & Young expect to hire additional staff within the coming year (see Figure 3). The bad news is that they may have a hard time doing so because experienced finance talent is now in short supply.

Finance function drivers

Several key factors emerged from our global survey responses and interviews as drivers of the growth and capabilities of the finance function:

1. Most technology companies conduct business globally from the start. The finance organization must be prepared to address more complex business and regulatory requirements with each new market entered. Maintaining financial controls and reliable reporting are escalating challenges as companies globalize and grow.

2. National and international financial regulations continue to evolve. Established public companies are not the only ones feeling the impact. The finance teams of emerging technology companies are being advised to integrate the necessary financial controls and reporting requirements into their operations from the start.

3. Venture-backed relationships last longer than before. Hands-on investors demand a continuing stream of financial data and analysis. In capital markets, the requirements for “going public” are more rigorous than before. No matter the growth strategy – a public listing, private equity or merger and acquisition (M&A) transaction – investor relations require more of finance’s time and effort.

4. Companies at all stages of growth increasingly call on their finance teams. Senior management requests strategic advice and data from finance to support business decisions.

Given the current dynamic business environment, higher stakeholder expectations and lower tolerance for missteps, start-ups today must develop faster than ever. And they must do so in a more controlled fashion. It is the job of the finance team to make the rest of the company comfortable with this new reality. That will happen only with the right finance team in place at the right time, and with finance’s processes and systems staying ahead of the company’s growth curve. ►
“The future is already here. It’s just not evenly distributed.”
Innovation is, frankly, different than we customarily think. Many people believe, and many history books assert, that Tom Edison invented the light bulb. This would, of course, be nuts. It was invented 40 years before he had anything to do with it, in the country of Canada. The problem with the light bulb that existed in Canada was that it burned out in about seven minutes. Tom Edison’s job was to get it to work reliably.

Tom Edison worked on his light bulb relentlessly, testing more than 10,000 different elements to see what would work as the filament. His work became one of the 600 patents that ultimately became General Electric Corporation. That would be a great story if it ended there, but it doesn’t. The lesson here – indeed, the lesson of all innovation – is sometimes things change.

The problem with the electric light bulb as we know it is that it’s terribly inefficient. It produces about 5% light and 95% heat. Contrast that with light-emitting diodes, or LEDs, one form of digital light. LEDs produce 45% light and 55% heat. Here’s the interesting part: LED technology became stable a long time ago. In fact, it’s about 23 years old. You probably have LEDs already in the brake lights in your car, and that’s because they last at least 15 years after they’re installed.

But it’s only now that we’re in this moment of change, when everybody sees the need to adopt a different form of lighting. Some may adopt one form of lighting, while others may adopt digital lighting, but the important thing is, the technology to create those things was stable a long time ago. There’s an important principle that is universally true about innovation. It was best stated by science fiction writer William Gibson a long time ago when he said, “The future is already here. It’s just not evenly distributed.” Knowing this principle, a great entrepreneurial leader would immediately, if there’s a shift in the wind, if somehow or other the entire world needs to, switch from analog lighting to digital lighting. Then immediately try to learn what areas were already ahead of others in embracing the new.

For instance, to see this digital lighting shift occurring, I would take you to Helsinki, Finland, where the city embraced the shift nine years ago. First, they separated the city into 26 different zones. They invited top architects, artists, designers and engineers to come and reinvent urban lighting during their five months of winter darkness. Their work is collectively called the Helsinki Municipal Lighting Project. They created healthier lighting inside of their buildings to offset the impact of shorter days in winter. They employed sensor-driven lighting to help pedestrians and vehicles, even river barges, navigate their way. They even made their ornamental lighting more efficient, so they wouldn’t waste so much energy on outdoor monuments – dead guys on horses.

What did they do in Helsinki that warrants our attention? They were first to recognize that a shift was underway. Because of that, they were able to call up the global suppliers and procure demonstration systems at close to zero cost.

It’s a powerful lesson to all of us. The critical component of innovation today is less about the protected individual capabilities and technologies way down at the bottom
and much more about seeing a transformation sooner than others and becoming demonstrably the best in the world at it.

The second central theme to successful innovation is that platforms trump products.

In India, there is a strong industrial organization called the Tata Group. Many people reading this have at one time or another probably stayed at the Mahal Hotel—a beautiful property, located on the seaside and very much prized by wealthier people. The cheapest room there goes for US$360 a night; the most expensive is US$2,200 a night.

One of my heroes in life, the man that invented the idea of core competence planning, C.K. Prahalad, was there a few years ago training the Tata Group leaders in how to rethink strategy. He talked about another principle that is fundamental to innovation: thinking about the nonusers of a category, not the known users of a category. C.K. Prahalad said, “How do you service the 38 million people that are in transit every day in India who cannot afford your cheapest hotel room?” He threw down a gauntlet and challenged them. He told them he would come back in six months, when he wanted to hear what they were doing to create an affordable and profitable hotel room priced at only US$25 a night.

“Oh, professor,” they said. “That would be very hard.” Then he told them he wanted the hotel to have flat screen panel displays in every room, plus high-speed internet, meal services and meeting spaces. “I want this hotel to be the hippest thing in India,” he said, “and I want people to be very proud when they stay there.”

He came back in six months. The woman in charge of the team told him they couldn't quite hit the US$25 target—they did it for US$26 per night!

In September of 2006, Tata unveiled its “Ginger” hotel concept in Mysore. It has flat panels, Wi-Fi connectivity, automatic check-in kiosks—the works—with rooms starting at only US$26 a night. C.K. Prahalad knew it could be done. By reengineering the platform itself, by asking the questions no one else dared to ask, he helped Tata revolutionize the world of Indian hospitality. Platforms trump products.

There will always be excuses why people can’t think in these terms. I hear them all the time. We’re a small nation. We don’t have the resources. We can only get that first stage of funding, and then we really have to sell it quickly and move on to something else. Inevitably, it doesn’t matter where you are. People have all kinds of reasonable-sounding reasons why they can’t innovate today. It is the innovator who casts aside the excuses and recognizes that sometimes things change.

Our absolute obligation to one another is to see those changes a little sooner than others, a little more clearly than others, commit to them more deeply than others and stick with that commitment through all the adversity that inevitably arrives. That is the real heart of innovation.

Key insights

- The lesson of all innovation is things change. Leaders embrace change, rather than resist or ignore it.
- The critical component of innovation today is about seeing a transformation sooner than others and becoming demonstrably the best in the world at it.
- Another central theme to successful innovation is that platforms trump products.
For more than 35 years, Dixon Doll has influenced and guided entrepreneurs, investors and executives in the computer and communications industries. Co-founder and General Partner of DCM, he was named by Forbes Magazine as one of the top 100 venture investors on its Midas List for the past four years. In 2005, he was elected to the board of directors of the National Venture Capital Association in Washington, D.C., and is currently the organization’s Chairman.

Ernst & Young: When you look back at the last 12 to 18 months, what surprised you?

Dixon Doll: The industry environment depends on where you define cycles to start, and many people think that a new cycle starts after a calamitous or precipitous fall-off. The last bubble began to pop right around March of 2000, and I think the current industry cycle started to rebuild somewhere in the 2001 timeframe. By that perspective, we’re entering the sixth or seventh year of the current cycle, and things have generally been improving on an incremental basis over the last five years.

The main thing that surprised me was that we have not been able to get the US capital markets back to historical norms. We had the best year for IPOs in the US in 2007, but this was still significantly below the historical norms of IPO activity that we encountered back in the middle to late 1990s, even before the bubble. Due to the recent US credit crisis, the IPO market in Q1 2008 was the worst in 5 to 6 years, maybe even the last 25. That certainly surprised me.

The other interesting point is that for the last few years, there has been a lot of conventional wisdom that you needed to offshore certain development activities. Virtually all of the semiconductor start-ups had low-cost development centers in China, and call-center companies have been starting operations in India. The combination of currency appreciations in those countries, as well as other venture-backed start-ups outsourcing a lot of their software development, has begun to make the arbitrage differentials erode.

In the next couple of years, companies that have traditionally done things in India and China may be forced to start looking at more emerging markets, like Vietnam, Eastern Europe, etc., to offset some of the evaporating cost differentials.

Ernst & Young: What about cleantech?

Dixon Doll: I’m not actually surprised about the emergence of cleantech, and it’s clearly become the important third leg on the venture capital stool [after healthcare and information technology]. Cleantech is no longer a fad, it’s a very real new market. There is still a lot of silliness going on in the cleantech space with the valuations and the amounts of money people are putting out. All of this is precipitated by energy and environmental pressures, so getting sufficient government programs in place should be a national priority.

Ernst & Young: What’s the potential impact of the uncertain capital markets?

Dixon Doll: There is a lot of economic uncertainty out there, and it’s rippling through the capital markets. We are urging our companies not to go public before they’re ready, but if they’re executing well and they are profitable and growing, there’s an old saying in the industry that if a company is good enough, it can get public at any time. That is still true. We’re being proactive with our portfolio companies, urging them to look at any and all possible exit opportunities and to run their business so that they can take advantage of these opportunities whenever and wherever they might exist.
If venture-backed companies can’t go public, the only exit alternative becomes an M&A. I think 9 out of every 10 liquidity events in 2006 was an M&A, and the number got a little more balanced in 2007. As we start 2008 with the IPO window slammed shut, M&As will probably become a bigger percentage of liquidity events in 2008 than they were in 2007. This reduces the choices for the VCs, and it will have an adverse effect on returns over the longer term.

The IPO markets always follow the general trend of the public markets, so for improved venture capital liquidity, the public markets must stabilize and start growing again. If that happens, a lot of the uncertainty that has been present in the market since the subprime crisis will be cleared up, and I think we can return to a more favorable environment for IPOs. Failing that, we’re going to have to finance our companies to become self-sufficient so that they can operate profitably and generate cash. As long as a company can do that, it’s not forced to go public.

Ernst & Young: What have been the key insights and takeaways from the markets, mature and emerging, you have invested in?

Dixon Doll: Any venture capitalist looks at a new company and thinks about having a multinational organizational model almost from day one. Ten or 15 years ago, a US start-up company was content to target only the US market at first, and then eventually expand into Europe and other geographies. Now, early-stage firms need to figure out how to become global organizations from the very beginning.

With this in mind, I think that it’s really, really hard for entrepreneurs – even very successful entrepreneurs that have built companies where all the employees were in the US – to know their way around a place like China or India or Japan. To be successful in this new world, you have to hire really outstanding people that know the local territory. This is true for investors too. For example, the Chinese government has been consistently tinkering with their local rules and regulations, and now they’re going out of their way to provide a favorable environment for domestic Chinese venture capital funds. You have to have great local people there, and you have to have really top-notch legal advisors to make sure that your offshore entity can respond quickly.

Ernst & Young: What are the key political issues that you see venture capitalists facing in the coming years?

Dixon Doll: We’ve worked very hard for 35 years at the National Venture Capital Association (NVCA) to create an economic environment that is entrepreneurially friendly and encourages start-up companies to take risks. Almost any way you look at it, it would appear that in 2009, there are going to be pressures on capital gains rates, but the exact changes will be highly dependent on the outcome of the elections.

If you talk to any collection of US-based VCs and ask them for a candid view about capital gains rates and the capital gains differential in the US, I think that everybody would say that 2009-2010 prospects make them very nervous.

Our venture model is the envy of the world, but there are at least 10 countries around the world where there is no capital gains tax. Entrepreneurs can live and start companies anywhere they want. We’re going to continue to work at the NVCA to do whatever we can to preserve the historically favorable domestic tax environment which we think is needed to encourage and incentivize risk-taking.

The other elephant in the room is the carried-interest tax issue – there has been a lot of discussion around taxing the carried interest at ordinary income rates. This issue is well known, it’s highly visible and it’s terrifying. We’re going to be working diligently at the NVCA to see that that does not happen. It would be a very bad disincentive that would significantly harm new company foundation and the associated job creation.

Ernst & Young: What are the top three challenges for the VC industry in the next 12 to 18 months?

Dixon Doll: In addition to uncertain capital markets, there is the possible macro-economic slowdown. I’ve recently seen some hard data that suggested that corporations are putting a lot of pressure on their IT investment budgets, which will certainly hurt the portfolio companies.

Second, we still have major-league issues with our ability to keep foreign nationals in the US. The H1B-visa numbers that get approved in Congress are inadequate; we need dramatically larger allocations.

Third, another high-level challenge in venture right now, which will continue for the next 12 to 18 months, is in the area of intellectual property protection. In the US and globally, there is a battle going on between big pharma and the smaller venture-backed companies over the ways that patent reform ought to be implemented. The NVCA is strongly supportive of an IP protection system that does not discriminate against small companies.

Ernst & Young: What advice would you give to an entrepreneur who is building a company today?

Dixon Doll: I’d say it’s a great time for teams to focus on fundamentals. I’d encourage any entrepreneur to set realistic goals and not just assume that the high growth rates are going to be automatically possible. In this economic environment, some of your customers may be tightening budgets, so set realistic goals that you can exceed.

In light of the capital market uncertainties, I think it would be proper for entrepreneurs to over-capitalize their companies, more than they might otherwise be inclined to do. Don’t scrimp and do create business plans that have larger cash reserves and contingency plans. Also, as noted previously, you need to plan organization models that include multi-location structures right from the start.
A cleaner, brighter future

Clean technologies enable the response to climate change for many of today’s leading global companies. Those that meet the challenge successfully have recognized the critical importance of responding to three interdependent issues: regulation, changing consumer behavior and the accelerating pace of technological innovation.

We work with companies large and small, new or established and in any industry as they transform their businesses in response to the challenges of climate change. It’s how we can help companies achieve their potential and make a lasting difference to the world.

What’s next?
“Overall, there is no good time or bad time in running a company. The key is that you should make use of different advantages during different periods of time.”
Robert Zhou joined Northern Light in 2006 as a Managing Director with more than 14 years of industry experience in China at prominent technology, media, telecommunications and multinational enterprises. He recently served as Vice President of China’s leading online portal, Sina (NASDAQ: SINA) where he successfully managed the Search and Sina.net teams and orchestrated key collaborations with Google and EachNet (an eBay subsidiary).

Ernst & Young: When you look back at the venture capital landscape in 2007, what were the surprises and lessons learned that stood out for you?

Robert Zhou: We predicted the market would cool down but never thought it would be in this way. In addition, it has become clear that China’s economy interacts more with the global economy, which makes it more complex. We did not fully anticipate the impact of the US capital markets’ situation on the Chinese capital market. Current market conditions are quite uncertain, which has impacted our investment decisions in China. It is also unclear when the IPO market will be back.

Ernst & Young: What’s the potential impact of the uncertain capital markets on the VC ecosystem?

Robert Zhou: With respect to the market, I think there are several impacts. First, the IPO market is in a cooling-down period, which has created significant impacts on both venture capital and private equity funds. Second, as of now, VC investments have not yet been affected, and some valuations are still quite high. But if the market continues to be weak, I believe that valuations will decrease. If the market remains slow, start-ups will face challenges in their capital-raising efforts. I also believe that if market conditions get worse next year, the venture capital investment pace will slow down. But this can also bring some benefits. In the last several years, the overall VC market in China developed well, but some regions were overheated. Hence, underperforming VCs might be confronted with tougher challenges when they have to start raising their next fund.

In the longer term, the Chinese market will be quite successful and generate quality investments. I believe that currently we just see a small part of the Chinese VC market potential, and in the next 10 to 20 years, this ecosystem will further develop to become a significant hotbed. In addition, China, as an emerging market, is different from the mature venture capital hotbeds. The VCs in China invest not only in the traditional VC-invested industries such as technology, but also in traditional industries such as consumer products, retail and professional services. Thus, on one hand, the average return on investment will not be more modest than the typical VC return on investment. But on the other hand, the investment landscape is more stable. Consequently, VCs will not experience a major slowdown in China due to the economic fluctuation. There are broad ranges of industries to be invested in the broad geographic scope of China. I believe it will not get much worse in China.

Ernst & Young: What have been the key insights and takeaways from the markets, mature and emerging, you have invested in?

Robert Zhou: From an investment strategy perspective, we will invest in the listed and early-stage companies but with more emphasis on early-stage companies. Our investment criterion is always the same, that is, to select the best companies. Although the IPO market is not so prosperous at present, we don’t worry too much about the listed companies as we invested in well-performing companies that will keep growing in the long term. Also, I think our fund-raising for our new fund last year was very successful, and we are currently focusing
on building our corporate culture, recruiting the right employees, motivating the existing employees and building the relations with our LPs and portfolio companies, with a vision of long-term development. What we have learned is to be honest in all of our personal behaviors and to be scrupulous in all our business dealings. In addition, there are many investment opportunities in China, and we hope that since our approach is more general, we will touch many of these opportunities.

**Ernst & Young:** What are the emerging challenges and opportunities for the VC industry in 2008?

**Robert Zhou:** The top challenge is the ability to go public in the current market conditions. Unlike in the US, where the VC market has a few VC cycles, there is only one cycle in China. Thus, if current capital market conditions continue, most investors will slow their investment pace. Also, in China, we continue to need the right management talent. Another challenge is how to balance the long-term and short-term targets of a venture capital fund and its portfolio. This covers many issues including fund-raising and how to manage a portfolio and establish a proper target for it.

**Ernst & Young:** What advice would you give to an entrepreneur who is building a company today?

**Robert Zhou:** Overall, there is no good time or bad time in running a company. The key is that you should make use of different advantages during different periods of time. When the IPO market is not good, fewer people choose to start their own businesses. But I think it is the best time to start a new venture. In fact, many companies including Google have experienced their fast-growing periods just at the worst time of the market. From the perspective of VCs, valuations are relatively low when the IPO market is performing badly. Thus, there are also good sides. Also, entrepreneurs of internet businesses or of businesses without clearly defined revenue models should focus on raising capital now. But companies in more traditional sectors should not rush because even if you have raised plenty of money, if the market is not good enough, you cannot perform well. In addition, it is highly important to select the right investors. Entrepreneurs need to consider seriously who the right investors are for them. For example, some investors can be anxious to push the company into an IPO while possibly giving the company good valuation; other investors can be more patient and willing to have long-term cooperation with the portfolio company.
Roundtable discussion

The impact of cleantech on the utility industry

In February 2008, as part of the San Francisco Cleantech Forum, Ernst & Young hosted a roundtable discussion on the impact of cleantech on the utility industry. Moderated by Joe Fontana, Global Transactions Leader for Ernst & Young’s Global Utility Center, the discussion focused on how cleantech is affecting the utilities’ corporate strategies, innovation processes and interactions with emerging growth companies.

Roundtable participants

Joe Fontana: The first question I’m going to pose to the group is this: what is the intersection between cleantech companies and utilities, and what is going to drive a connection between the two?

Allan Schurr: The intersection point happens with smart metering and smart grid technology. It also happens with how utilities assimilate renewables into the grid, with energy management and smart buildings, and it’s going to happen in transportation, with the options that battery-powered cars and other vehicles will introduce. For cleantech companies to take advantage of these opportunities, the venture capital community needs to learn how to “speak utility” so they can understand the regulatory environment and other aspects of the conditions in which utilities operate.

Matt Jones: How is cleantech going to impact utilities? There’s a simple answer on the supply side: regulations like the Renewable Portfolio Standard (RPS) require utilities to go out and buy clean power. You’re now seeing utilities enter into power purchase agreements (PPAs) with virtual start-ups, which we wouldn’t have seen 5 to 10 years ago without the RPS regulation. At the same time, with regulations like RPS, these new generation sources may actually cause problems with how utilities have historically operated. Whether it’s with wind, where you get a lot of dispatch issues, or even solar that does not cover the full peak load needs of a customer – there are going to be new issues that cleantech companies on the venture side can help solve.

Janice Berman: It all comes down to carbon regulation. We support carbon regulation at the state and federal level; we see it coming, and the way to prepare for it is to incorporate more clean technology at all levels throughout the utility. On the distributed generation side, we have lots of solar going on in California. As Matt mentioned, in the future, the issue will be how to integrate all these distributed solar systems with a grid that was essentially built for one-way flow. So I think there are a lot of opportunities for cleantech in developing smart grid solutions, communications infrastructure, making distributed technologies work with the grid and using the grid as a very effective battery and transmission device.

My final point is about the value proposition and how the value created by cleantech companies is realized. An energy efficiency product creates value for the end customer, in the form of efficiency savings, but it can also create value for the utility in the form of peak load reduction and increased infrastructure capacity. Finding the business model to capture the most value, while growing rapidly, will be a challenge for cleantech companies.

Janice Berman: It all comes down to carbon regulation. We support carbon regulation at the state and federal level; we see it coming, and the way to prepare for it is to incorporate more clean technology at all levels throughout the utility. On the distributed generation side, we have lots of solar going on in California. As Matt mentioned, in the future, the issue will be how to integrate all these distributed solar systems with a grid that was essentially built for one-way flow. So I think there are a lot of opportunities for cleantech in developing smart grid solutions, communications infrastructure, making distributed technologies work with the grid and using the grid as a very effective battery and transmission device.

On the energy efficiency side, we’ve invested about US$10 billion in energy efficiency over the last 30 years and avoided construction of 25 power plants. Looking ahead, the state regulatory utility commission is very dedicated to the idea of zero net energy communities, integrating efficient building design with renewable distribution generation technology at a community level and developing a smart grid infrastructure to support it. We are investing right now in...
a US$1.7 billion smart meter system, and another exciting development we see coming in California is, with plug-in electric vehicles, a great opportunity to integrate into the grid the vehicle, its battery and distributed renewable technology.

**Keith Schaefer:** There are four mega trends influencing this intersection between utilities and cleantech. First is demand, which is outpacing power generation and should in the next 10 to 20 years grow exponentially greater than generation. Second is the economy: whether we're talking fossil fuels or renewables, they're all expensive, so the issue is how to build that into the rate case or the budget of a utility. Third is security and the fact that so much of the global economy currently depends on oil from such volatile parts of the world. Finally, there's the environment: you have to think about green credits or the global warming effects of decisions, whether you're on the private or the public side. These are the four trends that are forcing the utilities, the venture capital community, the big international companies such as IBM and the start-ups like BPL Global to find a way to solve problems together.

**Joe Fontana:** Can you give us specific examples of where utilities and cleantech companies have partnered?

**Allan Schurr:** Advanced metering is the farthest along, with a greater proliferation of that technology worldwide than of any other clean technology. We anticipate that 90% of the US will have advanced metering in the next 15 years. A lot of innovation is happening in the metering area, and pilots become a very important, though sometimes overused, strategy for getting between a current technology and a full deployment. Utilities are reluctant to take on more innovation than they can prove to their regulators makes sense — they want standards and the ability to show that something works. However, with pilots, you can have a situation where, by the third pilot or so, the technology has changed, so that's a sort of negative balance to this great momentum we're observing.

**Keith Schaefer:** Pilots can be the death of start-up companies. What we have to do is make the utility — our customer — also our partner, so they trust that we're actually going to help them. Utilities don't really like to take risks with start-ups, so it's important to work with companies such as IBM that integrate and help us with the utility while we provide the software innovation. We try in a very collaborative way to work with the utility to help build the solution for them and bring in multiple partners. By creating a collaborative environment that brings a solution the utility wants and needs and is willing to pay for, we try to avoid pilots and get the utility to bet on our success.

**Janice Berman:** One thing that's happened with the RPS in California is that we've seen a sort of jumping over pilots to full-scale contracts with relatively new firms. Two examples are our contract with Finavera for power produced by wave technology and our contract with Green Bolts for power from solar photovoltaics (PV). There's much more interest in getting straight to commercialized utility-scale renewable technology because that's what we need to meet the renewable portfolio standard. An example of a longer-run venture is our partnership with Google, where we're looking at grid-to-vehicle, vehicle-to-grid and the electrification of transportation and the communications infrastructure that is going to develop around it. I can imagine a future in which an owner of a car plugs it in and the smart communications device sells power to the grid when the grid needs power, then buys power back in a way that ensures the car is charged when the owner needs it. The owner makes a profit buying and selling power from the car and that supports the utility and avoids lots of other battery creation. That's an exciting example of a much longer-range sort of pilot.

**Matt Jones:** Historically, there's been very limited success with cleantech and utilities, primarily because utilities were under a regulatory regime that did not reward them for taking risks on new technologies or operating concepts. Going forward, the concept of decoupling will better align the economics of cleantech with utility economics. Under decoupling, PG&E and other utilities can actually improve their overall economics by doing the right thing with cleantech, enabling them to be more aggressive about adopting new technologies going forward. Utilities will now have financial incentives not to do what they've done in the past, which was to build another large power plant using fossil fuel. For start-up companies, the issue will be how to work in a decoupled environment and bring to utilities a value proposition that makes sense to them economically.

**Janice Berman:** We've had revenue decoupling in California since 1972 and, during those 30 years, the state's per capita consumption has remained flat, versus a 50% rise in consumption in the rest of the US. Our utilities have invested heavily in energy efficiency because they profit from that, rather than from selling more kilowatt hours. I think there's tremendous opportunity for cost-effective carbon reduction and energy savings, both in California and throughout the US where there hasn't previously been decoupling.

**Keith Schaefer:** The more enlightened utilities don't talk about energy management; they talk about energy efficiency, not just in North America but around the world. Another idea that's being used more and more is outsourcing some of these services. In that way, utilities get the benefit of management and efficiency without having to bring in overhead, and I think we'll be seeing more of that.

**Allan Schurr:** Utilities are really getting hit on all sides. When we start seeing coal-based utilities crying out for carbon regulation, they're trying to get some certainty so they can be more aggressive and affirmative in their investments and adoption of new
Key insights

- The intersection between utilities and cleantech is happening with:
  - Smart metering and smart grid technology
  - Assimilating renewables into the grid
  - Energy management, customer efficiency and smart buildings
  - Transportation options introduced by battery-powered vehicles
  - Regulations like Renewable Portfolio Standards (RPS), which require utilities to buy clean power
  - The probability of carbon regulation in the US
- Partnering with integrators such as IBM who already have well-developed utility relationships can help cleantech start-ups sell to utilities.
- The most sought-after cleantech solution for utilities is the intelligent grid of tomorrow.
- Customers today want to respond to prices and manage their bills, so there’s lots of opportunity for demand response.
- Exciting opportunities lie in smart meter technology, getting information in consumers’ hands through simple “plug-in” devices and increased connectivity and information sharing.

Joe Fontana: How much do you think state government policy changes will drive utilities’ technology changes and their efforts to seek support from cleantech companies?

Allan Schurr: The states are really where it’s at in the US. Unlike the telecommunications industry, where the federal government has always had a strong regulatory role, the states drive most utility regulation in the US. When you see 25 states with RPS, it’s sort of an embarrassment to the federal government, and I think eventually it will make that move as well.

Keith Schaefer: That’s true, especially if the Democrats get in power.

Allan Schurr: In my view, it will happen regardless of which party comes to power in Congress.

Janice Berman: In California, the interests of the regulatory commission, the utilities and state politics have all been aligned for the past 30 years or so. Consumers want more investment in clean technologies in California.

Matt Jones: From a venture capital perspective, though, I want consistent regulations, not the current state-by-state patchwork. In some cases, the regulation determines your business model, so the more consistent the regulations are, the more focused you can be in creating your business.

Joe Fontana: Where do cleantech companies see their potential opportunities with utilities?

Matt Jones: In the past, utilities wanted large-scale projects from large-scale companies, but that is starting to change.
with utilities looking to start-ups on everything from demand response to RPS. Looking forward, as advanced metering infrastructure (AMI) is deployed, there will be more information than ever on customer energy-use patterns. Start-ups can leverage that information and use it to work with customers – use it to justify energy efficiency opportunities on the demand side.

**Keith Schaefer:** What we see, particularly in North America but also around the world, is that utilities don’t want to have a lot of start-ups with a product or a one-off – it drives them crazy, frankly. So we feel strongly at BPL Global that you have to have an open architecture system that allows you to have communications layers from the legacy system – smart-grid applications that we or competitors or partners might make. Utilities don’t move quickly; it’s the nature of their business, and you can’t change overnight the process utilities use to evaluate and implement major changes. By understanding how they do business and making it easier for them by having an end-to-end solution, you can move them at least a little faster.

**Allan Schurr:** We see some opportunities worth noting, including a company we’re working with out of Denmark that has been very successful in putting a non-invasive line sensor on networks so that network observability is increased. Application software, some of it related to meter data, is definitely a wide-open opportunity. All the information that’s coming in has multiple uses, and we’re just scratching the surface as to how we’re going to put it to best use. Trying to get utilities to change is slow, but if you can put the right tools and the right information in the hands of the decision-makers, you can accelerate the process. In addition to opportunities in advanced metering, I see opportunities in helping utilities run their transmission and distribution systems better, as well as their software and business analytics at a much higher level.

**Keith Schaefer:** Most utilities think from the center and move out and need to be helped to think from the edge and move in. If you put the tools in place – distributed energy resources – whether they’re sensors or batteries, and you put them out on the edge and move the energy around the grid, it becomes more efficient and more logical.

**Joe Fontana:** How might a cleantech company sell services to a utility, and where do you think the greatest opportunity is? Is it on the energy management side, is it on the supply side or is it some other opportunity we haven’t mentioned?

**Keith Schaefer:** Every utility is in a different situation. At APS, for example, they struggle with their peak season – they’re in Arizona, where it gets very hot, and their population is growing. So they’re focused on outage management and greater efficiency in managing the grid, and thus, demand management is very important. The major utilities in California are not building new generation plants, so they’re very interested in peak period management where, if you can shed load and get predictable savings, utilities don’t have to go out and buy on the open market. But the holy grail is business optimization – the intelligent grid of tomorrow – and I think that’s where we should be focusing. To do that, we really have to partner with the utilities, understand their business and needs and then work together in collaboration.

**Janice Berman:** The unexplored “next wave” is this idea of two-way flows on the grid, grid control and how we integrate the demand produced by electrification of the transportation sector in a way that it supports the grid and flattens the load profile. And then, how do we leverage wind resources, solar resources and transportation electrification so that they all intersect into a flattened load profile? There’s tremendous opportunity there for cost savings. There are also opportunities on the natural gas side for biomethanation – to feed natural gas stock into the pipeline – that’s another area we’re interested in.

**Allan Schurr:** The utility industry isn’t like other industries: it’s inefficient in its basic premise. We’ve got standby power generation, a spinning reserve of about 10% – and even that level makes a lot of planners nervous. Meanwhile, in terms of pricing, the telecommunication industry has had time-differentiated pricing from the very beginning. There’s always been concern at utilities that you can’t add complexity to the customers’ experience and ask them to behave as they do in every other industry, whether it’s buying an airline ticket or making a phone call. But while utilities don’t want to “burden” consumers, consumers are already doing this – they want to be active in the equation, respond to pricing and manage their bills. And yet, the utility industry has been reluctant to ask them. However, a shift is occurring, and it’s a profound one that makes me bullish on demand response and customer-side systems.

**Joe Fontana:** What does the utility executive think about using cleantech companies to reach solutions to problems that you have?

**Janice Berman:** I’m excited about our new Emerging Renewables Fund because it’s an opportunity for those with new ideas that are pre-commercialization to bid into us and get funding – and to operate renewable technologies on our grid. We also have a proposal to set up a home area network, or HAN, lab that would let people test new hand equipment on our new smart metering system. We plan to provide a signal into the home with our smart metering system. We plan to provide a signal into the home with our smart metering system.
environment. We have a project called “Easy Green” in northern California where it’s the teenagers who are saying “Dad, Mom, you should do this. You’re going to save money. It’s going to help the environment.” They’re willing to put a sensor on a thermostat and move it up and down during peak time. So I think we have to catch up to the consumer.

Allan Schurr: One of the things utilities have to do is to be much more attentive to making things super-simple so consumers can make decisions to participate without having to watch their PDA or their home or something else. We did a project recently up in Washington where about 110 houses had items such as their hair dryers and heating connected to an auction. Every five minutes, an auction occurred between those appliances and the wholesale market, and it was so simple that the consumers just set their preferences once and we shaved 15% off the peak. Consumers were happy that they were doing something but also that they only needed to provide that first direction. The innovations can add something here — making programs simple to use and simple to enroll in so that there are lots of ways consumers can participate in those types of demand programs.

Matt Jones: Almost the opposite is true for commercial and industrial customers because they have the resources to manage their energy consumption. They’re also now starting to react to a marketing need to be green, and some are even voluntarily looking at the carbon issue. Commercial and industrial customers are much larger energy consumers than residential consumers so these customer classes are more fertile areas for companies like BPL Global or even IBM to target with their solutions.

Keith Schaefer: And the metrics are so overwhelmingly positive, they have incentive to do it.

Joe Fontana: What are some of the innovative things we may see built into the utility of the future that aren’t yet here today?

Janice Berman: We’re going to start seeing zero net energy communities on a pilot and then on a full scale next year. Some of them are under construction already where there’s a lot of distributed generation in the community, a lot of solar — both on rooftops and then maybe over the water treatment facility. A tremendous amount of the state’s energy goes to pump water both up and down the state and to pump wastewater to treatment and back, and we could substitute gray-water technologies, reducing both energy consumption and water use, so I think there’s a tremendous opportunity in that area. And then there’s the holy grail: integrating transportation, the home, communications, the grid infrastructure and metering.

Allan Schurr: The big breakthrough will be when the technology for the user is as simple as a USB port for whatever that technology is. When you plug it in, it registers, it knows how to operate with whatever system is used — and it’s available at any retailer. When we get to that point of openness where the barriers to adoption are reduced to almost nothing, then I think we’ll see the integration — the end-to-end solution — happening very quickly. That’s the nirvana I really envision — making it so simple for the user that you buy the device, plug it in and all the things we’re concerned about in integration are taken care of through some back-end system.

Keith Schaefer: And that’s connectivity. With all the things we’ve talked about — sensors, devices, smart meters, smart appliances — it’s getting everything connected. What the internet really did was connect us. And once that information was flowing, it changed everything. We have to make sure that we’re not just solving one part of the system but that we’re thinking about connectivity and writing software that allows one device — one unit — to talk to another. And once there’s that connectivity and information flow, I think you’ll see the transformation.

Matt Jones: My nirvana is choice. My view is that these clean technologies are going to be cheaper than their fossil fuel equivalents. They’re cheaper today in some cases and will be cheaper in the future as energy prices go up. Having customers with the ability to make choices — and that ability comes from having information about how and when they use energy — allows them to adopt new, clean technologies in their homes and businesses.

Joe Fontana: Thank you very much. I hope you found this discussion as interesting as I did, and I want to thank the panelists for a fascinating exchange of ideas.
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