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Business and the environment

From geeks to greens

Feb 28th 2008 | NEW YORK
From The Economist print edition

Executives are switching in droves from the computer industry to clean-technology firms. Do they have what it takes to succeed?

PA - Landov

WHEN Shai Agassi, long the heir apparent at SAP, was told in March 2007 that he would not become chief executive for at least another two years, he quit. And when the German software giant then tried to change his mind by offering to make him boss right away, he realised he was "much more excited" about the new chance that his unexpected freedom would grant him. In January Mr Agassi's new start-up, Better Place, announced its first deal, in partnership with Renault, a carmaker, and the government of Israel: to "get an entire country off its addiction to gasoline" by switching to electric cars.

Though Mr Agassi is the most senior executive so far to quit a mainstream information-technology firm for clean tech, he is far from alone. Mr Agassi (pictured right, above) joins Elon Musk (pictured left), a co-founder of PayPal who is now chairman of Tesla Motors, an electric-car start-up, and Vinod Khosla (pictured centre), a legendary venture capitalist who has switched his focus from dotcommery to greenery, among many others. "There is an unbelievable migration of talent from traditional technology to clean technology," says Adam Grosser, a partner at Foundation Capital, a big Silicon Valley venture firm. "They have had their social conscience energised, and they believe there is a lot of money to be made. So you get to exercise your capitalist desires while feeling self-righteous at the same time."

Many of these techies are being recruited by the same Silicon Valley venture firms that were behind successive generations of tech companies, from PC-makers to software companies to two waves of internet firms. Along with Foundation Capital, several of the leading venture firms, including Kleiner Perkins and Khosla Ventures, are now betting big on green.

The multi-billion-dollar question is whether the skills that make somebody a successful executive,

entrepreneur or investor in digital technology also work with green technology. What does a software guru bring to biofuels? Can you build an electric car in a garage? The answers may have huge implications for the planet.

Mr Khosla, who made his fortune as a co-founder of Sun Microsystems, a computer-maker, has no doubt that the Silicon Valley model can succeed in this new field. Partly, that is because he believes that dramatic change can best be achieved by entrepreneurial start-ups, which are not lumbered with the incremental outlook of what, in the early days of the internet, were called "big dumb companies".

With market risk declining fast, as even the American government mandates big increases in renewable energy and energy efficiency, much of the job is coming down to backing the right technology. Mr Khosla believes that venture capitalists are good at understanding and managing technology risks, in whatever industry they are in. Traditional energy companies understand and take on exploration risk, say, but do not feel comfortable investing in a new fuel technology with a similar level of risk, he says. "People in venture and IT are used to operating in a context when you don't know if a technology will work, and we start building before the design is finalised and fix it as we go along," he says. They are also used to a high failure rate, which they balance against the prospect of rich rewards when things go well.

"What really differentiates the Silicon Valley community is its ability to work with entrepreneurs in all sectors and shape early-stage businesses," says Bill Ford of General Atlantic, a private-equity firm that is investing heavily in greenery. "Over my career in Silicon Valley, I have learnt how to create and grow technology-based companies," says David Cope, chief executive of Purfresh, a company that focuses on purifying water and food without using nasty chemicals. He previously worked for a string of tech companies, from IBM to BizGenics, a software firm.

The internet is so passé

Mr Agassi says that what he brings from SAP is an ability to think systematically about solving problems. "I learnt how to understand a big problem, break it into small pieces, solve every one of these pieces and to reintegrate them back into a system," he says, noting that previous attempts to introduce electric cars have failed because of a lack of systemic thinking. His solution brings together four pieces: Renault, which will build the cars; Better Place, which will provide the infrastructure that allows consumers to recharge the cars easily; investors to finance the infrastructure; and a government ready to offer a large tax break to anyone ready to buy a zero-emissions car—Israel has guaranteed its tax break until 2019.

In some cases, the leap from computing to greenery may not be all that big. Most geeks already have a science background (though Mr Musk abandoned his physics doctorate after two days). Building solar panels has much in common with building microchips. "It is all about miniaturisation and the use of silicon," says Mr Ford. If he is right to expect a "Moore's Law for solar", the effectiveness of the technology will increase at a predictable rate. One of the early successes in the green boom is SunPower, a solar-energy firm spun out of Cypress Semiconductor, which now has a stockmarket value of nearly $6 billion.

Similarly, energy firms operate huge distribution networks—another area in which geeks feel at home. "When I joined from Perot Systems in 2004, the last-mile technology for energy utilities had not been invented, and I saw a huge opportunity to help utilities connect more efficiently with their customers," says Scott Lang, the chief executive of Silver Spring Networks. His firm applies internet technology to utilities' networks to improve energy efficiency and manage demand. "This is classic IT," he says. He reckons that nearly half of the demand for new generation capacity around the world over the next 15 years could be met instead through greater efficiency.

One danger for tech executives who go green is that "they may expect things to happen too quickly," says Mr Lang. "They are used to overnight change, but this is going to take time." Another, at least for some green start-ups, is the amount of capital that has to be laid out at an early stage.

"The amounts of money on the line are radically different from traditional technology start-ups," says Mitch Mandich, a 25-year veteran of Silicon Valley technology firms, including Apple, who runs Range Fuels, which is building America's first cellulosic-ethanol plant in Georgia. (The idea is that turning plant material such as switchgrass, wood or agricultural waste into biofuel will overcome the drawbacks of corn-based ethanol, which is inefficient and drives up food prices.) He has had to learn to raise money from New York investment banks

and hedge funds, as well as from his venture-capital backers. Clean-tech start-ups very quickly leave the $5m-10m range, he says, and go to $50m and $100m fundraising rounds. “The stakes get very high much earlier.”

For this reason, Foundation Capital is focusing on firms that improve energy use. Attempts to design clean fuels are “not capital efficient”, says Mr Grosser, noting that “building plants costs hundreds of millions, and the margins may be low.” Mr Khosla, an investor in Range Fuels and other clean-fuel firms, disagrees. He thinks the huge market opportunity in “replacing coal and oil” justifies the huge risks.

Then there is the need to focus on government policy. When it comes to green investing, public-policy risk may matter at least as much as technology risk. Even though the three main remaining candidates for the White House all say they will introduce a mandatory federal cap-and-trade scheme to limit America's carbon-dioxide emissions, the details have yet to be agreed on and the votes cast. “Managing public-policy risk is not something traditional technology executives have had to do, so there will be a steep learning curve,” says Diana Glassman, an environmental-business banker at Credit Suisse.

Still, they are off to a promising start. Mr Khosla is fast building a reputation as a wily Washington wheeler-dealer. Range Fuels has won a $76m grant for its Georgia plant from the Department of Energy. And having bonded successfully with Shimon Peres and Ehud Olmert in Israel, Mr Agassi confidently predicts another deal between Better Place and a national government “within 100 days”.