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Welcome!

Green business ranges from sustainability to renewable energies to clean technologies and more. It's a big topic with huge implications for the world's future. Last spring Andrew Shapiro of Green Order, Lewis Perkins of Mohawk, and Innosight Chairman Mark Johnson participated in a panel discussion on "Green Business" as part of Forbes' Business Visionary series. This issue features a group interview of this panel in a further exploration of their thoughts on innovation in the green space.

In this issue we also feature another article in our experimentation series, "Through the Looking Glass: Experimenting with the Future of IT," by Kevin Bolen, who explores why technology companies should experiment as part of their innovation processes.

Comments and suggestions are always welcome – send them to editor@strategyandinnovation.com.

— Renee Hopkins, Editor

Feature: Green Business Innovation

Three business leaders talk about why innovation is critical to businesses wanting to be in the green space, whether established or startups

By Renee Hopkins

Andrew Shapiro, Lewis Perkins, and Mark Johnson participated in an April, 2009, panel on Green Business as part of Forbes' Business Visionary series. Strategy & Innovation editor Renee Hopkins re-convened the panel in a group phone chat to further explore the participants' thoughts on innovation in the green space.

Strategy & Innovation: *First, let's find out everyone's background. Why were you part of the original panel?*

Andrew Shapiro: My strategy consulting firm, Green Order, helps large enterprises leverage environmental leadership to create competitive advantage and long-term business value. We pioneered the idea that businesses can really embrace sustainability as an opportunity for

cultural change and transform how they look at the world and the entire enterprise. Globalization transformed the business landscape two decades ago, then the Internet created another wave of transformation a decade ago. Environmental sustainability is transforming the way companies do business today. We know being successful at sustainability and capturing this opportunity requires more than simply figuring out “what’s my footprint and how do I reduce it” or “how do I create a product or two that could be thought of as a green product.” Businesses must really look holistically and systemically at the enterprise, everything from research and development, to the people you hire and how you treat them, to commercial relationships and stakeholder relationships, and moving into public policy. More recently, we’re working closely with businesses to advise them on how the changing policy landscape will impact their overall strategy. We also take a very integrated approach – the Green Order team includes business strategists, scientists, engineers, policy experts, creative folks, communications specialists, and we bring all of those perspectives together because we think the challenges of sustainable business require an interdisciplinary approach.

Strategy & Innovation: Lewis, how about you?

Lewis Perkins: I am Sustainable Strategist for The Mohawk Group, which is the commercial division of Mohawk Industries, the largest flooring company in the world. I joined Mohawk just after the company had done an assessment of its sustainability culture, strategy, and overall presence. The takeaway from the assessment was that Mohawk was all action and no talk. To echo what Andrew was saying, there was no culture around sustainability in an industry where we had strong competitors who did have a strong culture and strong brand identity around sustainability. So my role was created to help identify and strengthen what we were currently doing on the employee level and connect that to programs and strategies we could embrace on the customer level. With a sales force of roughly 300 selling four different brands of carpet across the country, we were engaged in making sure not only that our products were meeting the sustainability standards our customers were looking for, but that our sales force could articulate those standards and grow sales as a result. I also ensure that we’re on top of where we should be in terms of levels of recycled content, levels of recyclability of the carpet, and producing our carpet using sustainable manufacturing practices, including the use of renewable energy and reduced water. A large part of what I do is make sure Mohawk stays on top of the next greatest technology or innovation in the green space.

Strategy & Innovation: Mark?

Mark Johnson: In my recent *Harvard Business Review* article, “How to Jump-Start the Clean-Tech Economy,” (see related reference) I’ve tried to consider the issue of sustainability from the perspective of the management of innovation. In my view, the only way to move forward faster is to go beyond thinking of sustainability as just a technology problem or as a matter of the government’s creating the right policies to encourage adoption of the right technologies. Rather, I believe we have to think more broadly about how innovative technology, government policies, and business models need to combine to create a sustainable infrastructure. And we need to think more carefully about the kinds of markets a new system like that could take root

in. Is that overseas in established markets, like Better Place is doing in Israel? Or in markets where pretty much no infrastructure currently exists, such as in emerging countries? How might a company pursue either course, or both? What sorts of new business models would they need to develop? That's been my focus — how do you think systemically through all of these things together?

Strategy & Innovation: *I'm struck by the differences and similarities between existing companies like yours, Lewis, trying to move in the green direction, and companies like the ones you've alluded to, Mark, and the ones you work with, Andrew, that are trying to formulate new business models around sustainability, or clean-tech, or both. Let's talk about the startups first. If you're a "green" startup right now, what's the most critical issue or issues facing you?*

Andrew Shapiro: I'm not sure you can reduce it to one thing. One of my heroes, Ben Cohen of Ben & Jerry's, once said to me almost 10 years ago when I was starting Green Order, "if you want to run a socially responsible business, first make sure you have a business." I think to some degree that's true for clean-tech businesses as well. Just because it's part of the current wave doesn't mean that all the other rules and principles about sound thinking for a startup don't apply. And, we've got companies trying to make breakthroughs in technology as well as companies disrupting existing industries, for example in an area like transportation or green building, which are not maybe technology-dependent but require innovative business models. So is there a single piece of advice or a single critical success factor? I would say it's hard to reduce to one.

That said, anyone who's going into a business like this needs to really understand the policy landscape and must particularly be able to price the externalities that these businesses are trying to address — carbon being first and foremost, but also other environmental externalities that are not currently priced in the market. Many of these businesses are predicated on a level playing field, ultimately, and this means figuring out a way to appropriately price the negative externality that comes from energy production and other manufacturing that leads to pollution. Many people have started businesses only to see that the policy landscape isn't changing as quickly as they had hoped. And that can really hang them up in terms of getting access to capital, getting commercialization, getting penetration in new markets.

Strategy & Innovation: *That makes sense. Mark, do you want to weigh on this? If you're a startup in the green space, what would be the most critical issues? I'm guessing you're going to say formulate a good business model.*

Mark Johnson: Absolutely. A business model is certainly fundamental: If there's a customer out there that has a job to be done and you can identify that job, there is the opportunity to make money through an effective business model — by creating a compelling customer value proposition to fulfill that job, devising an innovative profit formula to deliver it profitably, and marshalling the key resources and processes needed to fulfill it. Clearly there are companies out there already doing that, especially in solar. They also need to think about introducing those new models in the right markets. Some of these startups may have better opportunities in

places where there's no existing infrastructure. But companies need to figure out what will ultimately drive the widespread adoption of clean technologies if they are ever to move beyond niche markets. For that, their offerings will ultimately need to be part of the larger clean-tech infrastructure that, at least in the short term, will need to be nurtured not only in favorable foothold markets but also by favorable government policies.

Strategy & Innovation: *Lewis, you work for an existing business, not a startup. If sustainability is the direction the world's going now, as Andrew was saying earlier, what's the first thing an existing business would want to do to move in this direction?*

Lewis Perkins: What I'm seeing as the biggest mistake for established companies is trying to reinvent the wheel when other companies are already doing perfectly well parts of what they're trying to do. Now is a tremendous time for partnerships because budgets are limited, venture capital is limited, and executive leadership is focusing more and more on immediate returns. Some companies can't wait for several years for a return on their investment — they need to know that the dollars they invest this fiscal year are going to get a return this year.

For example, at Mohawk we needed to develop a proprietary internal-tracking system for sustainability reporting, but instead of building it ourselves, we're partnering with companies that can develop something for us more quickly. And the same thing is occurring with some of our sustainability programs — rather than launching our own initiatives to get involved in the green-building movement, we're working with organizations like Global Green, the US Green Building Council, and the projects going on in Greensburg, Kansas.

Many companies are taking a similar approach to social networking. Now, instead of building their own internal social network, more companies are asking, "How can we plug into existing organizations like justmeans.com or even use Facebook and Twitter capabilities?" For example, we just did a program called Re:work, which was designed to address the needs of the growing number of displaced architects and designers, who are our number-one customers. We wanted to make sure we were staying in the forefront of their minds during a tough time, but we also wanted to give back and help them. We launched the entire campaign using social networking sites that already existed rather than creating new and expensive marketing vehicles. Re:work has been held in eight cities and is also offered as a webinar — and we spread the word about it using Facebook, Twitter, and LinkedIn. This also goes along with the whole idea of "green" or sustainable innovation — rather than reinventing the wheel, look to see who's doing it and doing it well out there, and form partnerships.

Strategy & Innovation: *We've touched on some of the ways in which the current cultural change has begun to shape innovation efforts, new businesses, and so forth, which goes along with Innosight's theory that constraints drive innovation by defining the box within which you need to innovate. The green mandates — sustainability, using clean energy, trying to keep as small a footprint as possible, environmentally — how are those things driving innovation?*

Mark Johnson: In Innosight's language, we'd say that these constraints have the effect of

creating new jobs-to-be-done related to sustainability: “Make my environmental footprint smaller,” for instance, or “Let me run my business profitably using clean energy.” Innovative technologies will be developed and adopted to fulfill those jobs, but only through equally innovative new business models. Better Place, for example, in attempting to make the current electric vehicle technologies competitive, has devised a business model in which it sells miles driven, rather than cars, in much the same way that cell-phone companies sell minutes.

But right now the oil-based economy fulfills most of these jobs more conveniently and economically than current sustainable alternatives can, so the odds of people switching on a large scale for purely social reasons any time soon is, I fear, remote. If we want to effect the transition to sustainable technologies faster than the market will do on its own, these businesses will need government support — not only in the traditional form of underwriting basic and applied research but also, most likely, through tax incentives. This is going on in Denmark to spur demand for electric vehicles, for instance. The Danish government has instituted what some have called an “idiot tax”: you pay a 180 percent tax for gasoline vehicles and 0 percent for electric vehicles. Policy changes are critical because otherwise, the new technologies are likely to remain too expensive for the consumer in the short term.

Strategy & Innovation: What other forces are at work?

Andrew Shapiro: Besides policy, another related constraint dynamic we’re watching closely right now is transparency in the supply chain. For example, Walmart is encouraging and driving their supply chain to adopt best practices around energy management, carbon management, waste reduction and packaging, and other lean, green practices. We hear about it because Walmart’s supply chain is so vast and it touches so many industries and large enterprises that we work with, companies like GE and Dupont. Companies are trying to make sense of where they need to be on the environmental sustainability curve — do they need to be a leader in this regard, can they be a fast follower, or can even can they be a slower follower, frankly, kind of ride the slipstream behind what others are doing in their industry. So I think that’s a whole other area where businesses are seeing new pressure.

In some remarkable ways, large enterprises like Walmart, Tesco, and others can be as powerful as public officials and regulators in establishing policy and criteria that the supply chain and the rest of the business community needs to meet. Walmart can act a whole lot faster than the EPA, and their edicts and mandates can’t be challenged under provisions for being overbroad or burdensome. If you want to continue doing business with them, you’ll figure out a way to do it.

Strategy & Innovation: That makes perfect sense. They’re in charge of a whole piece of the economy, you could say.

Andrew Shapiro: Yes, and it’s not so little. Companies like Procter & Gamble, for example, I don’t remember the exact number, but I think something like a third of all products sold by P&G are sold through Walmart. Mark, you may remember the number, I can’t recall it off the top of my head.

Mark Johnson: That's not far off. It's a huge amount.

Andrew Shapiro: That dynamic comes into stark relief as you think about the competing pressures that are driving management to focus on the market forces accelerating change, and resources are committed to staying ahead of the curve and anticipating what's next. Also will there be areas where the supply chain community pushes back and says, "Wait a second, these directions may not make sense"?

Lewis Perkins: One area I see in which the dynamics are already changing is solar. Previously, when we last looked at switching to solar, the return on investment was going to be over too long a time period. But because of the current stimulus act, switching has now become beneficial. I think that's an important thing to look at in terms of policy. What I learned is that there's a \$500,000 cap at the state level but now no cap at the federal level on tax credits for putting in solar. That means we're now looking at a payoff within a year as opposed to three to five years. So the conversation we had a year ago and decided to end, we're now reopening. That could revolutionize the way we source our energy. In addition, we're looking at allowing the local utility companies to lease the rooftops of our manufacturing plants. That's another way we might make this work now that we couldn't before.

Strategy & Innovation: *I'm glad you brought up the stimulus, because I was going to ask about the current economic state. It seems there are good things and bad things about it — the good things being that a fair amount of the stimulus money is supposed to go toward green businesses, and of course the downside is that the economy is bad. So is the stimulus stimulating a lot of business creation? Andrew?*

Andrew Shapiro: Yes, there have been a lot of entrepreneurs who are interested in creating business in efficiency, which is a huge area the stimulus is focused on — improving the efficiency of buildings and homes. Previously that's an area that hasn't had as much investor focus as renewable energy. We're working with a number of financial institutions that fund renewable energy at a large commercial scale. We've also founded and coordinated an alliance, the US Partnership for Renewable Energy Finance (US PREF), that engages and educates policymakers on capital markets, to ensure the success of the legislation that will follow on the current stimulus bill and the programs, allocation methods, and new potential entities that may emerge. And there's real concern about whether the public sector properly understands how the private sector does things, so that you get the right fit between public and private that you want for that collaboration.

The other thing I would say is that there are a lot of question marks about whether the stimulus dollars are really going to get injected into the economy as quickly and efficiently overall as one would hope. To date, there's little evidence that that will happen on the timetable that's been intended.

Strategy & Innovation: *I've heard that as well. Does anyone else want to get in on this*

question? Has it affected your business, Lewis?

Lewis Perkins: Yes. Getting back to creating identity and brand around sustainability, two or three years ago we probably would have taken a stronger look at putting up solar panels to power a division of manufacturing just because it was great PR. Even though it may not have given us the return immediately, it would have been beneficial for other reasons. That's not enough reason for us to do it today, though. So the economy has caused a big shift in how we make those decisions. If it's not going to give an immediate return, it's not going to happen right now. But in many ways I think that's made it cleaner and easier to make decisions. A pretty strict litmus test makes decision-making a lot easier.

Strategy & Innovation: *Has demand for green products fallen off in the current economy, or is that holding steady?*

Andrew Shapiro: I don't have an empirical way to measure that, but I think there's a strong argument to be made that big companies should continue to focus on environmental performance and energy use in the downturn. If they're trying to be leaner, more efficient, and more cost-effective, whether they're creating new operating procedures or products to sell externally to customers, there's a realignment there in that most things that are greener save money. At least, when you're talking about energy management and natural resource management, companies should be saving money immediately or have a very near-term payback.

Companies can also benefit from a downturn, because they get a license to innovate, to reinvent. Progressive business leaders can look at a product portfolio and identify products and services that may not be well-positioned for a move to a low-carbon economy. Companies could therefore phase out products, services, or divisions for which they think there will be less demand in the future, and focus more on those that are more efficient, less polluting, cleaner, which might be more in demand, if not this year, then in the next five to 10 years.

In terms of startup companies, I see no turnback in the enthusiasm and interest among entrepreneurs and investors in funding clean technology or green businesses. That's in part because of the changing policy landscape we've been talking about. There's a very real awareness that even though oil prices fell off as much as they did, the ongoing trend is one of energy volatility and price and energy insecurity in terms of national or geopolitical forces, and that climate change is increasingly becoming an issue of top import globally. All these macro forces are very much still in play, and so we continue to see interest in new, environmentally sustainable product development, innovation, change, and pursuing opportunities that are going to translate into business success, even in this downturn and certainly as we come out of it.

Strategy & Innovation: *You made the point earlier, Andrew, that the terms "green" and "clean-tech" can mean many different things. Looking ahead, over the next six months, do you see anything bubbling up that's on your radar, any shift of emphasis?*

Andrew Shapiro: Thinking by analogy, or thinking historically by comparison, consider the dotcom boom 10 years ago and the bust that followed. I was working in that space at that time. At the height of the boom there were some really frothy, hype-oriented, meaningless things going on. My favorite example was pets.com and the sock puppet in the Super Bowl ad. They went public and 260 days later were out of business. Then after the downturn we got “real” innovation, and Google and YouTube and Facebook and even companies like Amazon and eBay really took hold. There was a shift in how people began to use the web as a real tool of commerce and communication and social interaction, and now it is integrated into practically everything that we do.

I think in some ways even though this downturn isn’t attributable to the rise of green, a lot of people have asked whether the recession spells death for green business. I say to the contrary, I think we’ve just begun. Although there are some indicia like, in 2007 the most trademarked term from the USPTO was “green” – more new companies were using that term to describe either the name of a company or a product than anything else – I think we haven’t even begun to see the real waves of innovation that are going to come. We haven’t seen the equivalent of a green Google, YouTube, etc., that’s really going to change people’s lives and how they interact.

So the thing I would focus on is not so much green widgets, not so much are people measuring their carbon footprint or otherwise trying to change their eco impact. The culture change that came with globalization, that came with the IT revolution, will also come with this revolution. This is at the end of the day less about whether Toyota or GM or Ford has more hybrids, and it’s less about whether GE, Siemens, or United Technologies has the most efficient gas turbine. It’s really about which companies are rethinking their processes and planning for a low-carbon economy characterized by natural resource constraint and changing stakeholder expectations around social and environmental responsibility. It’s about which businesses are poised to really take advantage of these forces for the long-term by changing how they perform environmentally, how they innovate, and how they influence and interact with the marketplace, and thus really reframing and understanding sustainability in that regard, for decades to come. This is more about creating a culture of environmental innovation within the enterprise than it is just one or two thousand tons less carbon dioxide or one or two cycles more efficiency in a particular widget.

I think that the intersection of environmental sustainability and innovation is also about reduction, and reduction ultimately can also mean a reduction in expenses as well. I think that’s the area in which we’re going to see the most growth. Rather than creating a lot of new things, we’ll create a lot of internal efficiencies and companies with business plans and behaviors that support those internal efficiencies. We’re seeing a lot of existing building in the green building movement right now, rather than a lot of new green construction. I met with the USGBC last week in Washington and we were talking about the growth of LEED for existing building during this time because people are looking to invest more in what already exists rather than create new. I think that’s important to track.

Lewis Perkins: I absolutely agree with everything Andrew said. And I think that we're already beginning to see the shakeout that mirrors the dotcom bust. I was working in the technology space from 1998 to 2002 and this feels very similar. Just two years ago, when I started with Mohawk, everyone was figuring out the new playground, so to speak. Just watching the pattern of our own decision-making within the company, we continue to stay invested in innovative products meant to move us toward a more sustainable future, move us away from petroleum, move us toward using a higher level of recyclable content, and move us away from PVC. However, some of our other initiatives that didn't have such longer-term appeal in the new economy have fallen by the wayside.

Mark Johnson: I agree as well. And there's a lot we can learn from the parallels to the dotcom era. In the past when we've seen these bubbles burst and companies go under, it was because either they never really had a viable business model to begin with (like pets.com) or they did things, particularly on the Internet, that were in the sweet spot of an incumbent and so were crushed before they ever really got going. One example is Planet RX, which tried to capitalize on the Internet in the pharmacy business but ran into Merck Medco. Merck was an incumbent whose business model – mail order pharmaceuticals -- was enhanced by the Internet. When Planet RX targeted that same area, it wasn't able to succeed because it was targeting the incumbent's sustaining innovation, not introducing a disruptive one.

I think there's a similar thing to be said here. We've got to be smart not only about the business models that will bring sustainable technologies to market but also about the competitive dynamics. We need to pay more attention to where these new business are going to take root. Better Place, for example, needs to consider how it will confront competition from the Chevrolet Volt. Maybe if Better Place comes to the United States, it could start with neighborhood electric vehicles and work its way up. That's how we have to think about the evolution of these things, in good-enough applications, with viable business models, carefully nurtured in favorable markets.

Related references

<http://hbr.harvardbusiness.org/2009/11/how-to-jump-start-the-clean-tech-economy/ar/1>

Feature: Through the Looking Glass - Experimenting with the Future of IT
Too often, IT companies don't experiment or engage with their customers

By Kevin Bolen

"Please review the document in detail and sign if you are comfortable with the terms. Those who do not sign will not be permitted on the tour."

I received this greeting back in 2005 as I embarked on two separate visits to the future. Though conducted months apart on separate corporate campuses halfway around the world from each

other, both tours began with nearly identical lectures from rather severe individuals (one with a German accent) on the need for complete secrecy. We were about to witness tomorrow and beyond – just as soon as we read and signed a detailed lifetime confidentiality agreement in front of witnesses. Having been duly sworn in, we stepped through the looking glass.

At every pre-determined stop on our tours – one of Microsoft’s Home of the Future and the other at Deutsche Telekom’s Future Center – we were given a chance to hear a well-rehearsed description of an engineering marvel, and see and experience these wonders for ourselves. And not clunky prototypes scattered around a lab, either – we were interacting with products and form factors that looked ready to ship, all collocated in high-gloss environments designed to show us mere mortals what the engineering gods at these two technology powerhouses were preparing to bestow on us.

Because I know those confidentiality agreements had no expiration date and because I still have nightmares about German security personnel, I will not divulge in detail what I saw those days. Rather, I will share what I didn’t see, as I feel there are far greater lessons there.

What I didn’t see on either tour was any type of experimentation. No one from the host companies even took note of our reactions. In each instance, the group consisted of approximately 20 upper-income, IT-savvy, 20- to 40-something consumers. Given the pervasive nature of what was being displayed, and the anticipated retail price of some of the gadgets, I have to believe we made up at least a portion of the key target demographic for these “innovations.”

Yet not one word of our comments was recorded as feedback for future design considerations. There was no debrief after the tour to capture our reactions or ideas, just a polite thank you and a reminder about confidentiality. They didn’t want our opinions, just our awe and supplication.

The hubris on display was astounding. These were not innovation centers, they were the corporate equivalents of the Roman Coliseum, steel and glass monuments to each company’s own greatness, and eye candy for the chosen few who were permitted a glimpse into the future.

Flashing forward nearly five years, the flaw in this strategy has been exposed. Technology has migrated from a creation > channel > consumer model to a conceive <> co-design <> co-exist model. New, easy-to-use tools and social media frameworks enable people to see products not just for what they are but for what they can become, and then help to make their vision a functioning reality.

What does this mean for the traditional technology development model? It too is undergoing a reimagining as the relationship between user and producer is redefined (again).

When information technology originated, it was a tightly controlled environment with only the

most qualified minds allowed to participate. Others waited in the wings for those with the right skills to apply them and give “the answer.”

As technology moved further out into the masses, elements like Human Factor Analysis, User Interface (UI) design, and usability testing became critical elements of a development program to ensure broad adoption upon release. Development became a scheduled discipline following rigid protocols like the Waterfall and Stage-Gate methods, with precisely scheduled moments for input.

Then, as the consumer market merged with the commercial market via the eCommerce expressway, human interaction became the product’s value proposition. Rigid development models could not accommodate such random and frequent input, and were therefore replaced by efforts like Agile, which favored a series of small, experimental releases and accommodated near-real-time incorporation of user feedback.

Eventually, though, even Agile couldn’t accommodate the scale and immediacy of input that could be provided via the Internet. Humans rose up and simply took control of the product itself, morphing it to suit their personal needs. And if those humans found a sufficient number of other humans with similar needs, they were able to shift irrevocably the product’s core value proposition from that originally conceived by the developers to the one most desired by the consumer.

In this dynamic, co-ownership world where the customer is also the co-designer and business partner, experimentation in the IT sector takes on a whole new meaning. It is no longer about displaying a screen shot to gauge input on a new UI layout. Rather, it’s about demonstrating a willingness to experiment in the first place and providing a vehicle to experiment with the value proposition itself and the business model that enables it. Experimenting in the new norm of the IT industry must therefore follow three core rules:

1. *Engage early: The market won’t wait for you to get it right, they will hack you and force the product to bend to their will. Don’t fight this, embrace it.*

Apple’s iPhone is a strong example of this new ethos. Apple didn’t seek to conceive of and perfect all the ways in which someone may want to use their phone. They simply provided the development and publishing platform for others and let the market sort out which offerings were most desired. Now, the library of apps, not the phone’s core functionality – which is actually on the receiving end of a good many complaints regarding sound quality and dropped calls – motivates people’s purchase decisions and keeps the iPhone ahead of all other similarly designed touch-screen devices.

2. *Treat the market as a business partner: An expanding channel is mutually beneficial, allow others the chance to experiment with their ideas and in turn create expansive new sources of revenue for you.*

Google's release of Maps and other functionality for use by real estate sites and others willing to display their ads alongside the map is another example of rethinking the business model. Google essentially enabled others to create profitable businesses using its functionality, and in so doing, created thousands of new distribution channels for its ads.

3. *Don't try to own it all: You have limits, the market does not. Define your differentiated space and allow others to sublet and improve upon the rest of the landscape.*

37signals' decision to release their home-grown development platform, Ruby on Rails, was inspired. The company proved the platform's effectiveness on its own portfolio of apps. Knowing it would be similarly effective for all manner of web apps, 37signals acknowledged they would design just a fraction of these. In choosing to turn the platform loose, 37signals' technology now serves at the heart of growing businesses like Twitter and Hulu.

When I reflect on this new reality, I often wonder whether those innovation centers designed to showcase the way things will be are still in use today as a reminder of the way things were in the days before IT learned to experiment.

From the InnoBlog

Emerging Technology Watch: Implantable Silicon-Silk Electronics

By Renee Hopkins

MIT Technology Review reports (see related reference) on new advances in implantable device technology -- thin, flexible silicon electronics built on silk substrates, resulting in electronics that almost completely dissolve inside the body. Says the report, "These electronics don't need protection [from the body], and the silk means the electronics conform to biological tissue. The silk melts away over time and the thin silicon circuits left behind don't cause irritation because they are just nanometers thick." The research that has made this possible took place on several fronts, including the development of flexible, stretchable silicon circuits that perform as well as more traditional rigid circuits, and making such circuits bio-compatible.

Applications could include "silk-silicon LEDs that might act as photonic tattoos that can show blood-sugar readings, as well as arrays of conformable electrodes that might interface with the nervous system," according to the article. The same research group is currently designing electrodes built on silk as interfaces for the nervous system. Such electrodes could integrate much better with biological tissues than existing electrodes, which either pierce the tissue or sit on top of it. Electrodes built on silk could be wrapped around individual peripheral nerves to help control prostheses.

Related reference

<http://www.technologyreview.com/computing/23847/page1/>

Will Eventbrite's Tickets Disrupt the Master's?

By Andrew Laing

Ticket sales and event promotion are sets of jobs-to-be-done that the Internet enables very well. Individuals can send waves of spam event-promoting notices over Facebook, and of course the 800-pound gorilla of "high-end" ticket sales is Ticketmaster. One startup, however, believes there's space in between: Eventbrite, backed by \$6.5 million from Sequoia Capital, is seeking to provide a lower-end, less-expensive Internet-based ticketing and event promotion solution for the masses. But can they successfully disrupt Ticketmaster and find space in a crowded market?

One potential hurdle Eventbrite faces is what one might call "ease of imitation." An event-promotion website isn't terribly difficult to set up, and a model that targets less-demanding customers would in theory be very easy for Ticketmaster to replicate. Of course, Eventbrite's willingness to charge much less than Ticketmaster does, and its focus on less-enormous events (Ticketmaster's home page promotes everything from U2 to the NFL to Cirque Du Soleil) may protect it if Ticketmaster sees that segment as too unattractive and unprofitable to bother with. But the catch-22 is that if Eventbrite succeeds, Ticketmaster will strike.

Eventbrite faces significant less-sophisticated competitors as well: simple solutions individuals organizing small events might turn to, from handwritten notes to Excel to Craigslist. A statement (see related reference) from one of Eventbrite's backers, Roelof Botha, is telling: "Most of the people who use Eventbrite didn't switch from anything else. These are people who organized events using spreadsheets, pen and paper. They never had a solution before." Of course, spreadsheets and pen and paper *are* solutions, and if many of Eventbrite's target customers are happy with them, what will motivate them to go online and pay a third party a fee?

Again, the Internet can be a terrific tool, and sites and applications built on it can do an ever-expanding array of jobs, but it's a mistake to assert that something people aren't doing on the Internet is something people aren't doing well. Using something as low-tech as a notebook to track ticket sales for your garage band or your small company's annual forum doesn't mean you need something electronic and "better." Eventbrite will only thrive if a niche truly exists between people for whom low-tech is "good enough" and higher-end customers for whom Ticketmaster will aggressively compete.

Related reference

<http://bits.blogs.nytimes.com/2009/11/05/can-eventbrite-shine-in-ticketmasters-world/?ref=technology>

Charting a Course through the Tempestuous GPS Seas: Google's Free Navigation Services

By Allen Stoddard

Google made big news (see related reference) last week when it announced that it will offer free navigation service for mobile phones as part of its new software, Android 2.0. The service will initially only be available on Motorola's new Droid phone (on sale beginning Nov. 6), but will eventually be expanded to more phones in the near future.

Unsurprisingly, the day the announcement was made, shares plummeted (see related reference) for GPS giants Garmin and TomTom, with Garmin's shares dropping by 16 percent and TomTom's closing around 21 percent lower. This amounts to a combined loss of \$1.7 billion for the companies, with Garmin losing a fifth, and TomTom a third of its market value. To be sure, stock prices for both companies have been nothing to gush over throughout the economic crisis, but before Google's announcement there had been some positive momentum with TomTom's GPS app created for the iPhone and Garmin's GPS/smartphone (Nuvifone).

It is too early to know how Garmin and TomTom will recover from and respond to this announcement, but at present their future does not appear to be filled with sunshine and smiles. True, Motorola's Droid is not necessarily the perfect solution for every customer, and some will still be more comfortable with a dedicated GPS device—it tends to display maps faster, has a bigger screen, doesn't need to be in cellular range to function, doesn't come with the annoying two-year commitment of a cell phone plan, and allows the driver to talk on his or her cell phone while simultaneously following a GPS course.

But for many consumers, Google's offering will be more than good enough. While GPS units cost an average of about \$177, customers who commit to a two-year contract can purchase (see related reference) a Motorola Droid for \$199. For a \$20 difference, customers get a sleek, supercharged smartphone whose navigation features—thank you Google—may even trump those of a standard GPS device. With response to simple voice commands, visual display of Google's street photographs, point by point directions, and possibly even free traffic data, its navigation features alone make the Droid an attractive product.

So how did TomTom and Garmin fall behind? How did the mighty fall so fast? The answer may have less to do with technology than it does with business models. While the tech industry is obviously moving at a rapid rate, the pace of destruction and transformation of business models in the navigation business is blinding. Instead of making sustaining improvements to their existing products (i.e. Garmin now makes 82 different GPS units – see related reference) perhaps the GPS giants should have been, and should now be, thinking about how they could transform their respective business models to reach new or existing customers in fundamentally different ways. It may not be too late.

Related references

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