

Innovating on the Cheap

Strategies for Funding Growth in an
Age of Austerity

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Growth—*real* growth—depends on innovation. Oh sure, a big acquisition can inflate a company's top line, but it's hardly fair to call this growth; agglomeration would be a better word. Deal making of the sort that was used to jack up revenues at companies such as Tyco, Vivendi and HealthSouth is unlikely to produce above average growth for more than a few years at a time. Study a company that has delivered strong revenue growth over a decade or more, and you're likely to find evidence of world-class innovation. Maybe the company invented a new industry structure, like Microsoft did when it "de-verticalized" the computer industry. Maybe the firm pioneered a bold new business model, like Costco did with its upscale warehouse stores. Or maybe it hatched a bountiful brood of sleek new products, like Samsung has been doing in recent years. Put simply, innovation is the fuel for growth. When a company runs out of innovation, it runs out of growth.

And there's the rub. We live in an age of austerity. Every line of every budget in every company is under perpetual scrutiny. Innovation budgets are no exception. Increasingly, R&D units are required to negotiate their budgets directly with key operating divisions, in hopes of tying their research spending to real-world customer problems. Companies like IBM send their R&D professionals into the field to interact directly with customers. Organizations are subjecting nascent development programs to ever more rigorous screening with the goal of focusing their resources on a few big-win projects. Additionally, companies are training their researchers to think in business terms so the researchers will be better able to decide whether an idea is worth pursuing in the first place.

These efficiency measures are commendable, but they don't go far enough. A company can't outgrow its competitors unless it can out-innovate them. And in these austere times, that is only going to happen if a company is capable of substantially raising the yield on its innovation investments. Achieving such a step function improvement requires more than just a bit of R&D belt tightening. It demands a fundamentally new way of thinking about innovation productivity, as well as a set of strategies that have the power to deliver a whole lot more bang for every innovation buck.

To dramatically improve innovation yields, companies must believe that innovation outputs (new processes, products, services, and business models) are less than perfectly correlated with innovation inputs (cash and talent). This assumption is more unorthodox than it first appears. When we recently asked more than 500 senior and midlevel managers in large U.S. companies to identify the biggest barriers to innovation in their respective organizations, the number one response was "short-term focus" followed by "lack of time and resources." In this view, innovation is highly dependent on investment, and it is senior management's presumed obsession with near-term earnings that most limits a company's innovation productivity. We think this view is wrong.

A careful analysis of hyperefficient innovators reveals five imperatives for dramatically boosting innovation efficiency, each of which can be encapsulated in a simple ratio:

- **Raise the ratio of innovators to the total number of employees.** The greater the percentage of employees

who regard themselves as innovators, whatever their formal job descriptions may be, the greater the innovation yield.

- **Raise the ratio of radical innovation to incremental innovation.** The higher the proportion of truly radical ideas in a company's innovation pipeline, the higher the innovation payoff.
- **Raise the ratio of externally sourced innovation to internally sourced innovation.** The better a company is at harnessing ideas and energies from outsiders, the better its return on innovation investments.
- **Raise the ratio of learning over investment in innovation projects.** The more efficient a company is at exploring new opportunities, learning much while risking little, the more efficient its innovation efforts will be.
- **Raise the ratio of commitment over the number of key innovation priorities.** A firm that is deeply committed to a relatively small number of broad innovation goals, and consistent in that commitment over time, will multiply its innovation resources.

We've resisted the temptation to turn these ratios into detailed metrics. Seeking too much precision at this early stage will merely reduce your chances of discovering new and fruitful ways of improving these ratios. At this juncture, three things are important: that you understand the principles behind the ratios, that you establish a broad baseline for your company around each ratio, and that you commit to achieving something like an order of magnitude improvement along

each of the five dimensions of innovation productivity.

In the pages that follow, we'll describe these ratios and offer specific tactics that companies can employ to increase them. It's important to note that while we found plenty of cases in which companies improved their innovation performance by consciously focusing on one or two of these productivity drivers, we found no single company that had worked methodically to raise its game along all five dimensions. This is good news for your business. Chances are your competitors aren't even looking for non-linear improvements to innovation efficiency. So there's plenty of scope for your company to distinguish itself—if it masters the art of innovating on the cheap.

Free Your Innovators

Years ago, J.M. Juran and W. Edwards Deming showed that a company can reap big rewards by investing in the problem-solving skills of rank-and-file employees. Why, then, do so few companies invest in employees' capacity to innovate? While everyone may be responsible for efficiency and quality, senior management still views innovation as the province of specialized departments (R&D and product development) or the unexpected benefaction of a few dreamers. While most companies no longer squander their employees' intellect, many still waste a substantial share of their employees' imagination. The cheapest way to get more ideas into the innovation pipeline is to ask for them. Cemex, the highly inventive Mexican cement maker, devotes nine days each year to harvesting employee ideas. Each of these Innovation Days is focused on a particular business

or function. In advance of the event, a sponsoring vice president personally invites hundreds of employees to submit ideas around a chosen theme—developing novel customer solutions, for instance, or dramatically improving cost efficiency. Accompanying the invitation is a small suite of innovation tools that the participants can use to help stretch their thinking.

A recent Innovation Day focused on ready-mix cement generated more than 250 ideas, which were classified into four categories: *stars* (big ideas that were clearly valuable and could be implemented immediately); *balls* (valuable ideas that needed to be bounced around for a while to see if they were practical); *apples* (good ideas for incremental improvement that could be quickly put into practice); and *bones* (ideas that appeared interesting but, on closer inspection, had little real meat to them). Ten stars emerged from the 250 submissions, including a new way to cast cement that allows contractors to double the returns they get on their investments in the casting molds.

High-profile, inclusive events can prime the innovation pump, but to get a steady flow of rule-changing ideas, companies need to institutionalize innovation as a deep value. At W.L. Gore, a \$1.35 billion Newark, Delaware-based company with 6,000 employees, the organizational structure, resource allocation practices, and management principles all serve a single core belief: Innovation can come from anyone, anywhere. It's hardly surprising that the company places a premium on serendipity—its signature product, Gore-Tex, sprang from a humble experiment. Hoping to create a low-cost plumbers' tape, Bob Gore, the founder's

son and the company's current chairman, stretched a piece of polytetrafluoroethylene (PTFE) and discovered, quite by accident, that it had some rather amazing properties. When PTFE was laminated to fabric, the resulting material was waterproof and breathable—a boon to campers, hunters, athletes, and many others.

Today, W.L. Gore has no directors, no managers, no titles, and virtually no hierarchy. (The company refers to its organizational structure as a lattice.) Employees—"associates"—don't have bosses; they have sponsors. Every associate can allocate 10% of his or her time to dreaming up new applications for the company's unique materials. When an idea emerges, it's up to the innovator to recruit colleagues to support its development. This market for ideas acts as a screening device. Ideas strong enough to attract volunteers from across the company move forward; projects with less drawing power don't. Beyond this, a cross-functional oversight group periodically meets with project teams to ensure that the ideas they're pursuing are commercially viable. W.L. Gore's innovation democracy has propelled the company into areas as diverse as fuel cells, medical devices, sealants, dental floss, and guitar strings. It has also made the company one of America's most highly rated employers—not least because people get to work on projects they care about. The excitement, ardor, and intensity produced by this fusion of vocation and avocation are powerful resource multipliers. W.L. Gore, like Cemex, gets a lot out of its people because it believes there is a lot in them.

What else can you do in addition to asking for and expecting innovation? To

begin with, set a goal. Identify the number of people in your company who have an innovation role (R&D personnel, product development staff, and so on). If this group comprises less than 10% of the employee base, commit to tripling it over the next 12 months—not by hiring more innovation specialists but by involving existing employees in innovation processes or events. Ensure that employees are given the time, tools, and space they'll need to exercise their innovation muscles. Create an Innovation Board that will screen new ideas and sponsor first-stage experiments. For every department and business unit, benchmark the percentage of employees who have submitted ideas or participated in innovation events. Do all this, and your innovation yields will soar.

Look Outside

Regardless of how creative your employees may be, there's more innovation potential outside your company than within it. Look around, and you'll see a world filled with software hackers, music remixers, video producers, and bloggers. Technology is rapidly emancipating the human imagination. The challenge is to harness this imagination in ways that multiply one's own innovation resources. Companies have long sought to complement their internal development efforts with external sources of innovation. Typical strategies have included licensing technology from more innovative firms, polling lead users for new ideas, outsourcing R&D to universities, or joining research consortia. All this is old hat. What's new is the ability to use the Web to tap the world's ever-expanding reservoir of human creativity. Before the Internet, it was hard to find people whose passions matched your problems. No

more. Even better, many of these zealous souls are willing to work for a mere pittance.

Consider the development of Linux, the "other" operating system. In 2001, the last time someone counted, Linux had more than 30 million lines of source code, representing something like 8,000 person-years of development time. Had this software been developed by well-compensated software engineers, the bill would have come to roughly \$1 billion. Instead, it was created by volunteers—a development model even more efficient than outsourcing work to India's eager young coders. Even IBM, with its multibillion-dollar research budget, finds this deal too good to pass up. Linux is now at the heart of the company's enterprise-computing strategy.

Is Linux a single, shining exception to the do-it-yourself norm? Nope. Epic Games and Digital Extremes, creators of the popular Unreal Tournament computer game, have enrolled thousands of their customers in a virtual development network. Along with NVIDIA, a maker of ultra-fast graphic chipsets, and a handful of other companies, the game companies have sponsored a \$1 million competition that rewards individuals from around the world who build eye-popping "mods" and "cons." New mods—in the form of new weapons, characters and action settings—can be downloaded by game players and thus enrich the gaming experience. Conversions are entirely new games that utilize the Unreal Tournament "game engine." Both serve to multiply Epic's own development efforts.

To further fuel the flames of innovation, Epic Games has posted more than 100

hours of free, downloadable video training on its web site—all designed to help users learn how to create custom game content. In addition, the latest DVD version of Unreal Tournament includes a powerful suite of game design tools—some of the same tools used by Epic’s internal developers.

To put this in context, imagine that Chevrolet distributed powerful computer-aided design software with every Corvette it shipped, along with a digital rendering of every fender, valve, piston, wheel and knob of its signature sports car, and then invited car nuts everywhere to submit their mods and cons. Imagine further that the best of these ideas were posted on Chevy’s web site to inspire yet more innovation among the world’s horde of aspiring car designers. If Epic Games can create a volunteer developer network, why not Chevy?

To energize a congregation of volunteers, you must first answer some critical questions. Who out there cares about the problems my company cares about? What kind of investment in this community would be required to build goodwill and trust? What non-monetary incentives might engender the volunteers’ contributions? What mechanisms—Web sites, peer review processes, discussion forums, standards and protocols, and so on—can we use to structure their contributions?

As ever, it’s helpful to set a goal. A.G. Lafley, Procter & Gamble’s transformation-minded chairman, has challenged his company to source half its innovations from outside the company, up from roughly 20% at present. Lafley wants more success stories like P&G’s Swiffer mop, which uses technology pur-

chased from a Japanese competitor. He understands that P&G’s next killer product or business model may come from someone who’s not even on the payroll.

Get Radical

For most companies the issue is less, “Are we investing enough in innovation?” and more, “Are we investing enough in ideas with the power to make a real difference to our competitive performance?” The fact is, most “new” ideas are nothing of the sort. They’re retreads, updates, and add-ons—modest improvements to ideas that were modest to begin with. To be clear, there’s nothing wrong with incrementalism. But it’s radical ideas that yield the biggest innovation payoff and drive above average growth. An idea is radical if it meets one or more of three tests:

- **It changes customer expectations and behaviors.** For example, PayPal’s user-friendly service has changed the way people send money to one another.
- **It changes the basis of competitive advantage.** For instance, the proliferation of digital cameras has altered the basis for competition in the photographic film industry.
- **It changes industry economics.** For example, with its simplified route structure, no-frills service, and flexible work practices, Southwest Airlines has dramatically changed the traditional cost structure for airlines.

Understand, “radical” doesn’t necessarily mean “risky.” Risky investments are uncertain and expensive. Some radical

ideas, like gene therapy, are risky, but many are not. Take the Starbucks debit card, for example. The idea was radical: Who, after all, would have expected that coffee drinkers would happily pay for their daily dose of caffeine days or weeks in advance? Yet it wasn't a particularly risky idea. The technology (magnetic-stripe debit cards) was well proven, and the idea could be easily tested in a few stores before a big rollout. The risk may have been small, but the payoff has been big. In the first two months after the card's launch in November 2001, Starbucks booked more than \$60 million in prepayments. Since then, more than 26 million cards have been sold, and they now account for about 10% of Starbucks' sales.

French physiologist Claude Bernard once remarked, "It is what we think we know already that often prevents us from learning." To generate radical ideas, you have to teach people to look beyond the conventional. A good way to start is to ask a group of employees to deconstruct your company's business model into its constituent elements: value proposition, supply chain, product configuration, pricing, marketing strategy, and so on. The team members should then conduct a point-by-point comparison with the business models of your biggest competitors. Whenever they identify a point of convergence—and they will find dozens—they should ask, "Is there truly no other way to organize this aspect of our business, or have we become the unwitting prisoners of industry convention?" The goal here is to become conscious of the orthodoxies and the dogmas—the standard industry practices, if you will—that silently strangle radical ideas.

Here's a simple example of an industry dogma. Check in to any midprice hotel, and you'll probably find a closet filled with theft-proof hangers. Their loop-and-ball design delivers a brusque message from hotel management: "We know you'd steal our hangers if you had the chance." Is there a more customer-friendly and profitable way of handling the problem? Sure. Put a sign in the closet, "Hangers: \$5. Help yourself." Then ask the person who checks the minibar to count the hangers as well. Voilà—the closet becomes a profit center. That idea, by itself, won't change a hotel chain's fortunes—but a large portfolio of similarly unconventional ideas certainly could. To build such a portfolio, employees must be trained to recognize and challenge any industry practice that is justified by nothing more than precedent.

Discontinuities—in technology, demographics, lifestyle, regulation, and geopolitics—are often the launching pad for radical innovation. But just as individuals can be blind to industry dogma, they can also be oblivious to the implications of deep change. For example, one noteworthy demographic trend in recent years has been the steady increase in the number of single-person households in the United States. Until recently, this trend seems to have been mostly ignored by the appliance industry. While microwave ovens are well suited to the needs of someone living alone, many other appliances are not. Dishwashers, for example, are cavernous, capable of washing the plates, pots, and pans associated with a large family meal. What are the choices for someone living alone? Wash the dishes by hand after every meal? Inefficient. Run the dishwasher with a very small load? Uneconomical.

Wait several days until the dishwasher is full of plates covered with an impenetrable crust? Gross. At Whirlpool, a cross-company team studied the changing demographics of the American household and came up with a radically new concept: Why not make a small dishwasher that would be as convenient to use as a microwave oven? The result was Briva, an in-sink dishwasher that can wash and dry a small load of dishes in as few as five minutes.

To find the innovation potential in discontinuities, companies need to ask, “What are the deep changes in our world that our competitors have underestimated or ignored?” This requires less a crystal ball than a concerted effort to understand the revolutionary potential in things that are already changing. Dramatic change always creates opportunities for radical innovation—but only if you’re paying attention.

Breakthrough innovation typically focuses on problems that customers can barely articulate. Unfortunately, traditional market research seldom reveals perennially unmet needs nor does it lay bare long-accepted vexations. What is required instead is an empathetic, first-person understanding of what it *feels* like to be a customer, coupled with a willingness to search for eye-opening analogies in other industries. Such an approach often yields novel solutions to seemingly insuperable problems.

Take TiVo as an example. It’s cool: Push a button, and you can record any show you like and then watch it any time you like. It’s radical: Its ad-skipping feature has struck fear into the heart of every soda-selling, pill-plugging executive. But imagine for a moment that we’re still

back in a pre-TiVo world. How does one go about generating a TiVo-type insight? Not by talking to TV viewers or by interviewing industry executives. Instead, you might want to draw some analogies from the experience of reading a magazine. No one tells you that a magazine is on only at eight o’clock in the evening. No one compels you to read all the advertisements in a magazine. When you need to take a break, you can simply put the magazine down for a few minutes without fear of missing something. In essence, TiVo has made the experience of watching television much like the experience of reading a magazine. We don’t know how the TiVo team came up with its big idea. But even with the benefit of hindsight, this simple analogy would have allowed one to posit the inevitability of a TiVo-like device years before it actually hit the market.

Deep customer problems often remain invisible because we cannot imagine radical new solutions. Yet a disciplined use of analogy—What if a dishwasher were more like a microwave oven? What if watching TV were more like reading a magazine?—often brings long-overlooked problems into sharp focus and points the way to radical solutions.

To get more radical ideas in the pipeline, you need to establish a baseline. Start by identifying every initiative that will burn through more than \$250,000 in operating or capital expenses over the coming year. (You can adjust this figure depending on the size of your business.) Rate the initiatives on a scale of one to five, where one denotes a project that does nothing more than perpetuate the status quo and five denotes a project that could surprise both competitors and customers. Unsure of what constitutes a five? Identify the

three or four most significant game-changing innovations in your industry over the last few years and use them as a benchmark. At the outset, it is unlikely that more than 10% of the projects in your company's innovation pipeline will deserve a score of four or five. Regardless of the percentage, strive to double it within the next year.

To reach that goal, you're going to have to give your employees the skills to innovate. At Whirlpool, for instance, all 15,000 salaried employees are required to complete a two-hour online course on the basics of business innovation. They are also encouraged to call upon the more than 500 innovation mentors across the company who have received extensive training in how to develop, test, and validate new ideas. It's not enough to just expect your employees to innovate; you must equip them to innovate.

Experiment

As any successful entrepreneur will tell you, radical ideas don't start out as sure-fire bets. A great idea becomes a commercial success through a recursive process of experimentation and learning. At the start, it's not always easy to tell whether a new idea is "smart stupid" (like trying to get millions of consumers to prepay for their coffee) or "stupid stupid" (like trying to get millions of consumers to buy their coffee online). That's why low-cost, under-the-radar experimentation is so important. It allows a company to fully explore the potential of a radical new idea while avoiding the kind of expensive risk-taking that so often gives innovation a bad name.

A few years back, a team at Shell Chemicals identified an opportunity to radically change the economics of the detergent

and fabric softener business. Its idea was simple: Formulate products at the point of sale (in supermarkets) and sell them in reusable containers. In theory, everyone would win: Consumers would get custom formulations in smaller, easier-to-store bottles. Retailers wouldn't have to devote so much shelf space to detergents and softeners of multiple scents and sizes. Reusable packaging would be good for the environment. And Shell would capture more of the value from the active ingredients it supplies to detergent makers.

The idea seemed compelling from every angle. Shell Chemicals had the resources for a big rollout, but the project team knew there was much to learn. As a start, the team talked a major UK retailer into allowing it to conduct a single in-store experiment. Team members built a prototype dispensing machine that was, to put it kindly, not much more than a tin box containing a 55-gallon drum and a pump. This quick, cheap experiment was enough, however, to validate several hypotheses. Consumers liked the machine. They made repeat purchases and reused their bottles. Store managers liked the idea, too. It saved them valuable space, increased their sales, and, despite some fears to the contrary, didn't require them to station an employee with a mop near the dispenser.

Over the next several months, the team conducted two more small-scale experiments, in China and the United States. In doing so, it uncovered some challenges. In Europe and Asia, the environmental and space-saving benefits appealed to consumers—but many retail outlets in those countries were too small to justify their investment in the machines. U.S. consumers seemed to care much less

about recycling and storage issues. And in all geographies, there were unresolved issues around branding.

Whether or not the idea of in-store formulation ever pans out, Shell's commitment to low-cost strategic experimentation has clearly paid off. Despite the passion that swirled around the initial idea, an early large-scale launch would have been a disaster. On the other hand, months of in-house research and financial modeling would have produced few real insights. Quick-and-dirty experimentation allowed Shell to rapidly adjust its business model at very low cost.

As your company works to master the art of low-cost experimentation, it's important to keep several principles in mind. First, understand that strategic experimentation of the kind we have been describing is quite different from traditional product testing. If product testing is akin to putting an individual through a battery of tests to see if he is qualified for a specific job, experimentation is more like giving a junior staffer a series of development opportunities to prepare him for a job he might never have dreamed of. Hence, the scope, philosophies, and methodologies for product testing and strategic experimentation are markedly different. (For a comparison see the Appendix "Product Tests vs. Strategic Experiments").

Second, don't try to test everything at once. Identify the most critical hypotheses to be tested—for example, market access and acceptance, technical feasibility, pricing and cost economics. Then rank each hypothesis on two criteria: its importance to the eventual success of the product, service, or business model innovation and the degree of uncertainty

that it entails. Design the first few experiments to generate learning around those hypotheses that are both critical to success and much in doubt. It's all right to be impatient, but be impatient to learn. Remember, new plays open in Des Moines or San Jose or Indianapolis first, *then* they move to Broadway.

Third, if ultimate success depends on leveraging assets or competencies that reside in the core business, don't delegate the responsibility for experimentation and learning to some kind of corporate new-venture unit or incubator, most of which are little more than orphanages for unloved ideas. Instead, make it clear to operating managers that it's their responsibility to parent new strategic experiments. Then set up a corporate-level review mechanism to track the progress of experiments across the firm. At Cemex, for example, a top-level Innovation Committee meets monthly to review the company's portfolio of newborn projects, many of which are housed inside operating units. In our experience, such oversight helps to ensure that fledgling experiments don't get terminated under the pressure of short-term operational goals.

Stick With It

Big shifts in innovation priorities and start-again, stop-again investment programs undermine innovation productivity. When it comes to innovation, consistency counts. Over time, small ideas compound, learning from experimentation accumulates, and competencies grow stronger. Teams develop a collective memory and avoid making the same mistakes twice. With this in mind, a company should commit itself to a relatively small number of medium-term

innovation goals. Just as important, it should measure its commitment to those goals not in terms of how much it invests but in terms of how persistently it pursues success.

Consider, for example, the race to produce practical, energy-efficient cars—a race that Toyota appears to be winning despite a big, expensive start by GM. In the early 1990s, General Motors bet big on electric vehicles. Eschewing the hybrid approach in which an electric motor complements the work of a gas engine, GM chose to build the EV-1, an egg-shaped, all-electric, zero-emissions vehicle. Launched with great fanfare in 1996, the car proved to be a commercial bust. After spending \$1 billion on the project and producing only 700 vehicles, the CEO pulled the plug in 1999.

Toyota was more consistent in its pursuit of energy efficiency—and generated less hype—than most of its rivals. After a multiyear development program, the company introduced a hybrid vehicle in Japan in 1997. In 2003, Toyota sold more than 50,000 hybrid vehicles and planned to sell 300,000 annually in the second half of the decade. Meanwhile, GM's first hybrid car was not scheduled to reach the market until 2007. In a testament to Toyota's patient approach to developing ecofriendly cars, Ford announced late in 2003 that it would license hybrid technology from its Japanese competitor—a somewhat surprising move considering that Ford's annual R&D budget was, at the time, nearly 80% bigger than Toyota's.

Being consistent doesn't mean investing in a new idea for a decade or more with

no expectation of revenues or profits along the way. Rather, it's about finding a stepwise migration path with clear checkpoints that allow your company to consolidate its progress and recalibrate its direction. Having learned from the ignominious demise of the EV-1, GM has adopted a more graduated approach to its investments in fuel-cell-powered vehicles. The company is increasing its investments in stages, as it learns, and it will first test its fuel cell technology in nonautomotive applications where the performance demands and initial financial risks are less daunting. Revolutionary goals and evolutionary steps—that's the recipe for innovation efficiency.

Finally, to be consistent, your company needs to have something to be consistent about. It needs innovation goals that are big enough to be compelling, yet practical enough to be credible; goals that are broad enough to invite contributions from across the firm and beyond, yet specific enough to provide focus. Such goals have the power to multiply individual efforts.

Competitive evolution has always favored companies that can do more with less, and this is as true for innovation as it is for any other function or activity. To produce more growth per dollar of investment, your company must produce more innovation per dollar of investment. This will require a dramatic and permanent improvement in innovation productivity. It's not enough to skimp, scrimp, and save. To become a growth champion, your company must augment, compound, and multiply. It must parlay meager resources into radical, growth-generating innovation. It must learn to innovate boldly and consistently—on the cheap.

Appendix

Product Tests vs. Strategic Experiments

	Product Testing	Experimentation
Scope	<p style="text-align: center;">Product or Service</p> <p>Product testing focuses on enhancements or extensions to well-established products or services within the context of a mostly static business model.</p>	<p style="text-align: center;">Business Model</p> <p>Strategic experiments seek to explore the merits of a number of interrelated changes to a company's business model.</p>
Philosophy	<p style="text-align: center;">Prune</p> <p>Product testing is typically designed to winnow out potential duds. The basic principle is, "Don't invest in losers."</p>	<p style="text-align: center;">Learn</p> <p>Strategic experiments are designed to create opportunities for iterative learning. The basic principle is, "Don't kill a great idea prematurely."</p>
Methodology	<p style="text-align: center;">In Vitro</p> <p>Product testing takes place in laboratory-like conditions, where new products are subjected to a series of ever more rigorous tests with customer panels. Customers use the products but have no chance to buy them until a formal launch decision has been made.</p>	<p style="text-align: center;">In Vivo</p> <p>Wherever possible, experiments are conducted in live commercial settings where customers can buy the product or service or some reasonable facsimile. The goal is to learn how customers interact with all the elements of the redesigned business model.</p>