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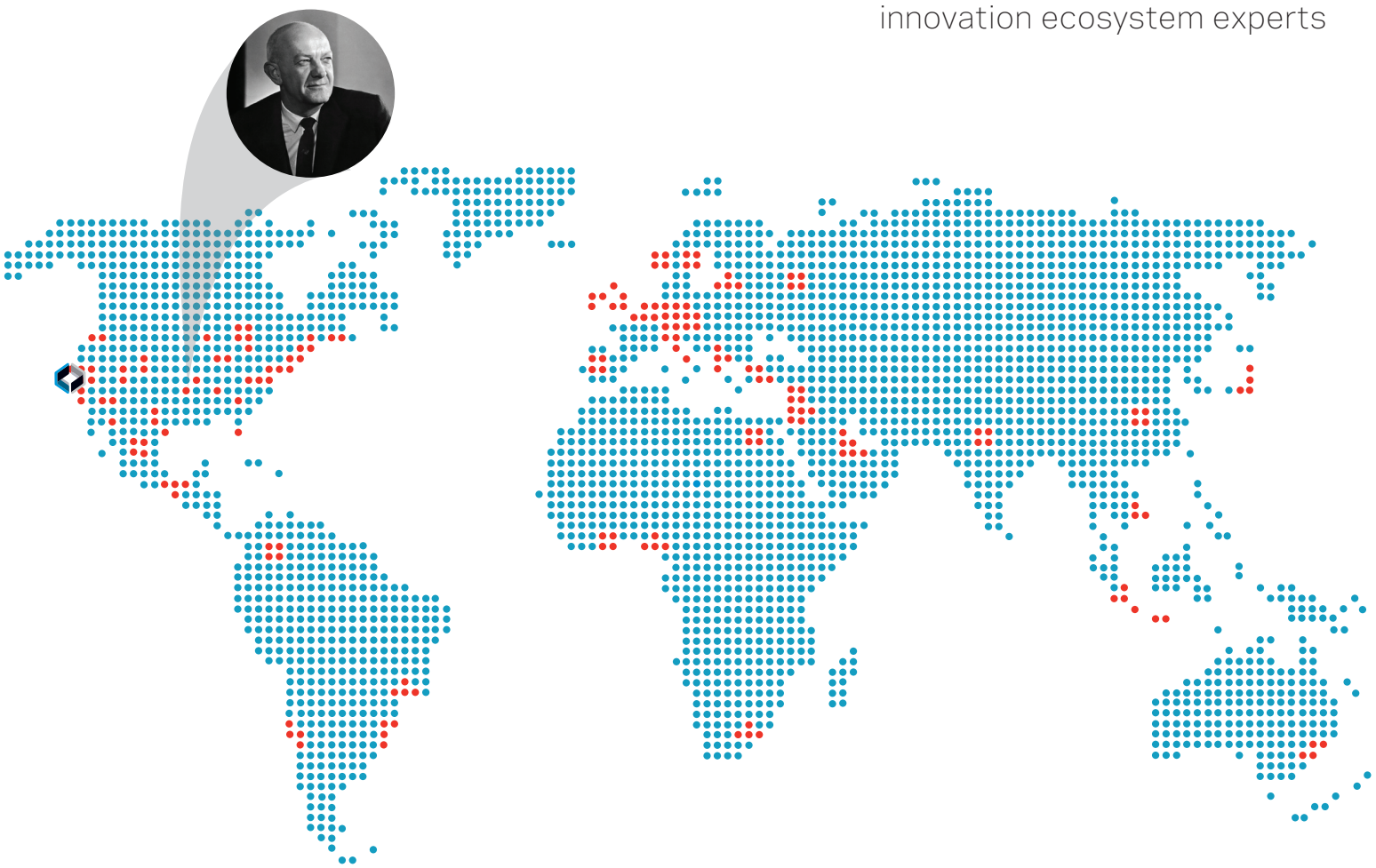

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High-Tech Exceptionalism: From the Front Lines

Lakshmikanth Ananth
Class 12

Prologue

In 1874, Studebaker was the largest vehicle house in the world, producing carriages for every customer segment from farmers to the White House—and in 1913, its automobile production was second only to Ford. Studebaker was the only carriage maker to transition from carriages to automobiles.[1] This nugget of business history illustrates two intriguing facets of high tech important to developing a successful strategy.

First, while the phrase "high-tech sector" typically refers to a collection of businesses driving innovation and growth, what constitutes "high tech" is always evolving. A century ago it was industrial, automotive, aviation, and electrical technology. Today, high tech employs sand, glass, data, and algorithms to create human experiences through computer technology.

Second, the successful high-tech businesses of one era rarely survive into the next. With few exceptions like Studebaker in the carriage-to-automotive transition and IBM in the mainframe-to-client-server transition, the history of high tech is littered with companies that failed to survive the end of an era. So, how can a company do what Studebaker did and survive those tectonic shifts in technology?

In this article, I propose a framework for building and sustaining a differentiated business strategy that not only withstands but thrives on technological shifts. First, I review the effects of past shifts. Then, I lay out a step-by-step process for engaging the details of this strategy and suggest a portfolio structure that sustains it over the long term, using illustrations from real-world implementations. I offer a perspective from the front lines, based on 20 years of experience as an engineer, investor, and strategist at the epicenter of technology—Silicon Valley. I've been privileged to work with the best minds in established large tech firms, startups that became the Next Big Thing, and top-tier venture capital firms.

Before getting into the nuts and bolts, however, a brief description of high-tech exceptionalism—a concept at the base of the strategy—is in order.

High-Tech Exceptionalism

High-tech companies that have been strategically successful over long periods of time have mixed track records, with tech stars rising and falling faster than in other industries. When tectonic

[1] Anecdote taken from Randall Stross's article, "Failing Like a Buggy Whip Maker? Better Check Your Simile," *New York Times*, 10 January 2010, http://www.nytimes.com/2010/01/10/business/10digi.html?_r=0.

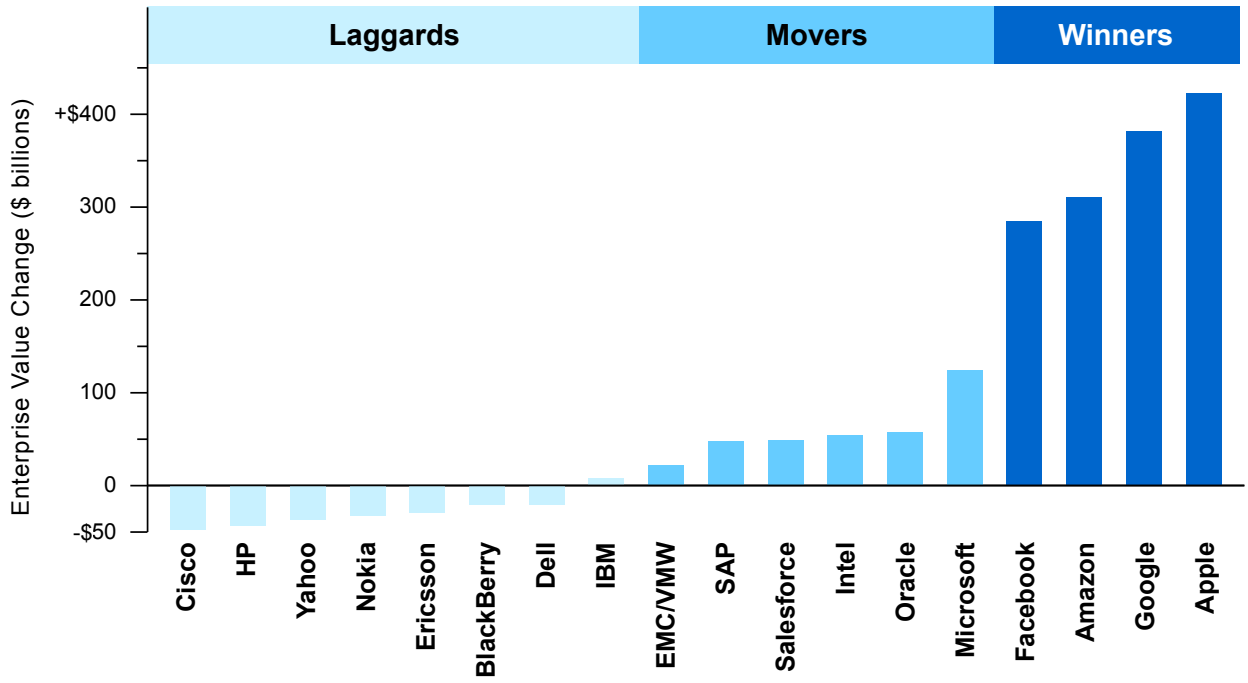


Figure 1. Impact of Cloud, Mobile, and Social on Enterprise Values of Large Cap High-Tech Companies, 2007–2015. Author's figure; data from CapitalIQ, 451 Research.

shifts happen, most of the outfits in the high-tech old guard do not survive. When the iPhone and Android were introduced, what became of BlackBerry?[2] Whither AOL, once broadband Internet became ubiquitous?

I argue for what I term *high-tech exceptionalism*.[3] High tech is inherently unique because innovations and markets continually and rapidly intersect to create discontinuities that don't fit well within traditional strategic-analysis models.

If high-tech exceptionalism exists, the question then becomes, "If high tech is different, what framework can we use to conceive, build, and execute a sustainable strategy?" So, with that question in mind, it's worth looking back at the tectonic shifts over the last decade and how these trends have changed fortunes.

Value Creation in High-Tech Shifts

In hindsight, 2007 was a seminal year. Amazon Web Services (AWS) launched S3 Storage and EC2 Compute at the end of 2006.[4] The iPhone was launched in June 2007. In October 2007, Mary Meeker noted in her annual Internet Trends report that 6 of the top 10 Internet sites were social and user-generated, surging ahead of portals like AOL and Go, and e-commerce sites like eBay and Amazon.[5] Cloud, Mobile, and Social had arrived. Figure 1 shows how market value has been added or removed for large-cap high-

2 In a private meeting with Silicon Valley venture capitalists in October 2008 at the BlackBerry Developer Conference, Mike Lazaridis contended that they had effectively countered the rise of the iPhone and Android by launching the Blackberry Application Storefront. I remember asking him whether BlackBerry's enterprise productivity-oriented software platform and devices could win against the lifestyle- and consumer choice-driven iPhones, and his answer was, "iPhones will never be successful in the enterprise market. We know this market and what our customers want."

3 "High tech exceptionalism" is my lighthearted play on "American exceptionalism," a term that refers to the special character of the United States as a uniquely free nation based on democratic ideals and personal liberty.

4 Amazon Web Services (AWS) delivered the first storage service (Amazon S3) in the spring of 2006 and compute service (Amazon EC2) in the fall of that year. When AWS launched, observers initially thought that it was Amazon's effort to sell excess capacity not used by the retail website. However, AWS's CTO has since publicly dispelled the notion and said that AWS was intended to be a standalone business from the beginning. See Werner Vogel's Quora response to "How and Why Did Amazon Get Into the Cloud Computing Business?," *Quora.com*, 13 January 2011, https://www.quora.com/How-and-why-did-Amazon-get-into-the-cloud-computing-business.

5 Mary Meeker, "Technology/Internet Trends," slides published 1 October 2007, http://www.kpcb.com/blog/october-2007-technology-internet-trends.

tech companies as these shifts have played out since 2007.

The winners—Amazon, Apple, Facebook, and Google—were at the forefront of the new trends and have added over $1.5 trillion of enterprise value since 2007. They executed on strategies that capitalized on the transition, and their success has been well chronicled.

It may be more instructive to study the "movers" and "laggards." Both groups were incumbents in high tech, with $1.2 trillion of combined enterprise value in 2007. Their strategies in response to the technological shifts, and how they executed behind their strategies, determined their different trajectories.

Microsoft is a good example of a mover. Their strategy has been to realign their enterprise product portfolio—operating system, system software, and office applications—to the Cloud. While their Mobile platform strategy has not been successful, their ability to execute as a fast follower in Cloud added $125 billion in enterprise value to their $263 billion starting position in 2007.

In contrast, Yahoo has gone through a succession of leaders and changes, without a clear strategy to address the fundamental shift in consumer time spent online from portals to social media and mobile. Consequently, their core business has lost over $30 billion in value. In 2000, Yahoo was worth $125 billion.[6] In 2008, it rejected a $44 billion acquisition offer from Microsoft.[7] Recently, it sold its core business to Verizon for $4.83 billion.[8]

A sound, sustainable navigation strategy shifts the outcome—and for high-tech incumbents in particular, their strategy determines whether they will be laggards, movers, or winners.

6 Emily Jane Fox, "Verizon Buys Yahoo's Core Business for $4.8 Billion," *Vanity Fair*, 24 July 2016, para. 2, http://www.vanityfair.com/news/2016/07/verizon-yahoo-sale.

7 Associated Press, "Yahoo Board to Reject Microsoft Bid as Too Low," 9 February 2008, http://www.nbcnews.com/id/23084127/ns/business-us_business/t/yahoo-board-reject-microsoft-bid-too-low/#.V-WgS7Wi4Qg.

8 Fox, "Verizon Buys Yahoo's Core Business for $4.8 Billion," para. 1.

Framework for Building and Living a High-Tech Strategy

I propose a practitioner's framework for building a high-tech strategy—a set of "Lego blocks" that can be selected and put together to suit the particular circumstances of *any* high-tech business. This approach addresses issues from the highest level of constructing big-picture context to the on-the-ground details of execution decisions such as selecting an organizational model (see figure 2). I have used and refined each of these elements on the front lines, so wherever possible, I share illustrative examples from real-life examples to make the framework and its components tangible.

There are four components to this framework: two concern constructing the big picture of industry shifts, from technology to markets, and the interplay of the two. The third component helps bridge a high-tech business's current state and its desired future state. Finally, the last component develops best practices for building toward outcomes. Each of these main components has further subcomponents and required inputs, which I describe and illustrate in this section.

Component 1: Assess Technology Shifts

The front end of constructing a big-picture context is a deep understanding of the underlying technology shifts that drive the industry. Every high-tech company should have a high-powered team constantly assessing technology shifts to foster this understanding, drawing from experts and practitioners of the specific technology's specialties, both inside and outside the company.

Underlying Moore's Law, the most talked-about technology curve, are three facets of a

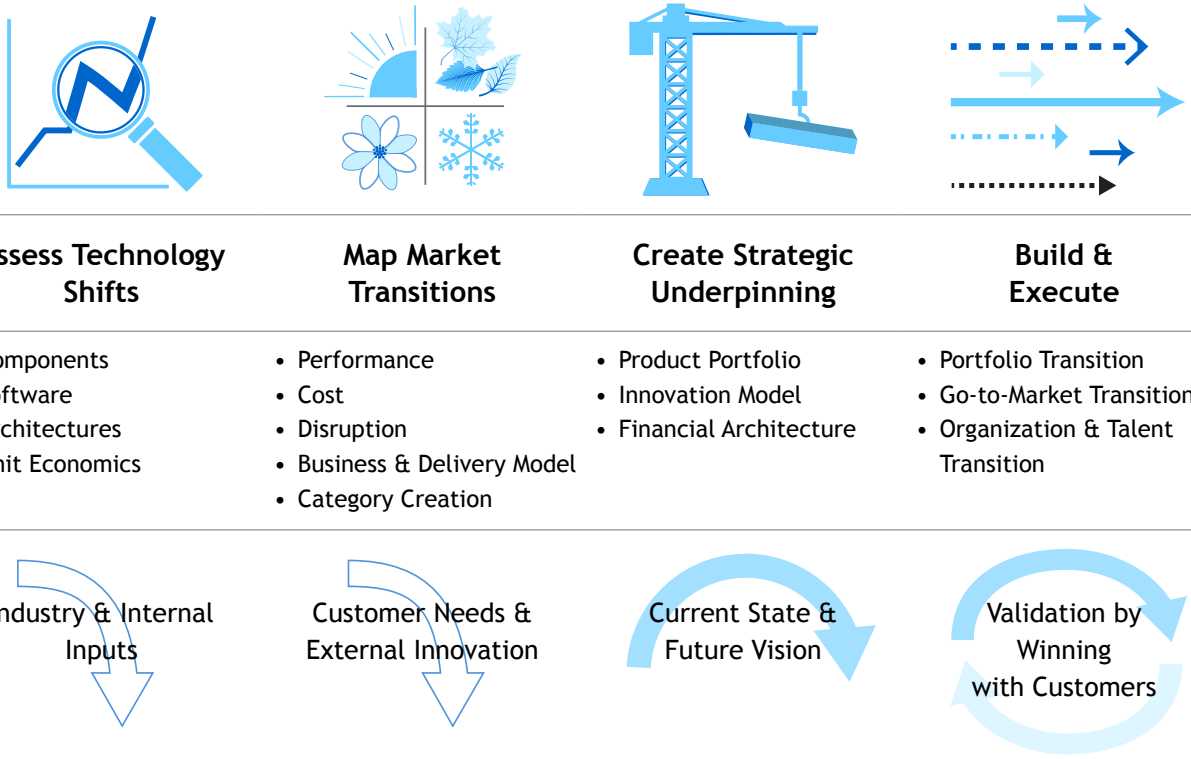


Figure 2. Framework for High-Tech Strategy. Author's figure.

technology shift: hardware components (e.g., optics, materials), software algorithms and models (e.g., data analysis, machine learning), and the architectures of specific business and enterprise solutions (e.g., iTunes and iPod, social media apps, SaaS). It's also important to understand technologies through unit economics.

At specific points, the vectors of these four curves intersect in interesting ways that allow step function innovations. For instance, when advances in processing power, battery technology, mobile data, and touch screens intersected in 2007, the smartphone was born.

Components

Advances in the physics of semiconductors, optics, radio, and materials have long been the bedrock of high tech. While each high-tech business needs to decide which of the subset of component shifts it is susceptible to, it may be useful to review an example to get a sense of what these shifts look like.

In 2005, Moore's Law took a deviation from the path that it had been traveling for over 35 years. Previously, improved processor performance was mainly due to frequency scaling, but when the core speed reached ~3.8GHz, frequency scaling became cost prohibitive due to the physics involved. Thus, processors began scaling by introducing more cores into each processor. This flattening out of speed and proliferation of cores had a profound impact over the next decade. Enterprises had to slice up each processor to utilize its full capabilities, which led to the rise of virtualization and VMWare. Large datacenter operators realized they needed to "scale-out" their capacity to serve more users and store more data, commoditizing each unit of capacity and supporting the rise of Cloud computing.

Software

Software builds on the relentless progress of the underlying components. At each new inflection point of hardware, two things become noticeable: first, the velocity of software development accelerates as software is further decoupled from hardware; second, new possibilities open up for breakthrough algorithm

development. These two forces combine to create new software platforms.

In one such shift currently underway, the processing power and data capacity of hardware have enabled machine learning and artificial intelligence algorithms to be developed and run at scale. Being able to grow and change when exposed to new data enables computers to take on imprecise pattern-matching tasks that could previously only be done by humans.

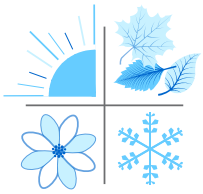
Architectures

In high tech, *architecture* is the concept of how the pieces of technology are assembled to solve a problem—at certain points, new arrangements of the pieces become viable and deliver a solution. For instance, the transition from mainframe to client server was made possible by the increasing computing power and software development potential in client computers. Likewise, the architecture for local logistics is now being redefined: shared vehicles and labor, smartphone apps, ubiquitous high-speed data, and software in the Cloud are paving the way for countless ride-sharing, delivery, and sharing-economy startups.

Unit Economics

The interplay of components, software, and architecture drives unit economics. In turn, the unit economics of technology enable new entrants to serve customers differently than incumbents, or allow them to create completely new categories, thus driving market transitions.

Case in point: when frequency scaling in processors started flattening out in 2005, it became significantly more economical to run large workloads in a collection of commodity machines than in one large machine. Without Moore's Law driving frequency scaling, Hewlett Packard ProLiant x86 servers were 10-20 times more cost efficient than Hewlett Packard Superdome servers on a per-transaction basis for a variety of workloads.[9] In simple terms, the unit economics of Cloud computing were an order of magnitude better, and drove the tectonic shift to Cloud.



Component 2: Map Market Transitions

When technology shifts meet customer needs at the right moment, buying and spending patterns change. In high tech, these periods of movement—when segments of the market change from one state to another—are called *market transitions*.

When market transitions happen, the new solution is initially attractive for a small portion of the total market; as the new solution is improved upon, it becomes more desirable to greater market segments. After the 2007 technology shift, for example, consumers switched from regular mobile phones to smartphones, at first in a trickle and then in a landslide.

Market transitions are critical in high tech, because market shares can move very quickly from incumbents to new entrants. The venture-backed entrepreneurial ecosystem has become hugely successful at identifying market transitions and building companies capitalizing on those transitions. For established companies, this same ecosystem can serve as a "canary in the coal mine" indicator of market transitions—and offer potential investment, partnership, and acquisition targets to address the opportunities created by market transitions.

Anticipating, discerning, and acting boldly on market transitions are the most important strategic imperatives for a high-tech business and its leaders. There are five canonical models for market transitions: performance, cost, disruption, and business and

[9] Google researchers Luiz André Barroso and Urs Hölzle's ground-breaking 2009 paper, "The Datacenter as a Computer," sparked the mainstream understanding of Cloud computing. See Barroso and Hölzle, *The Datacenter as a Computer: An Introduction to the Design of Warehouse-Scale Machines* (Williston, VT: Morgan & Claypool Publishers, 2009).

delivery models focus on reinventing existing markets, while the category-creation model is about opening enormous new markets made possible by technology.

Performance

Offering a new product that is faster and better, for a premium or for a comparable price to an incumbent, is a well-established mode of high-tech competition. At certain points in technology curves and market adoption, performance provides enough substantial benefits for a customer segment that it overcomes switching costs and enables a new entrant to gain market share. Through performance shifts, Juniper took share from Cisco in telecom routing and Arista won with financial services customers in datacenter switching.

Cost

When a new entrant to a customer segment has a sustainably lower cost structure or incumbents are highly inefficient, there is an opportunity to drive market transition using cost as a differentiator. Typically, such entrants first win in an emerging geography or with a segment of underserved customers.

For example, Indian IT service providers had the advantage of an abundant, skilled, lower-cost labor pool. They originated the onshore-offshore paradigm of IT service delivery, and rode the cost model of market transition to win in the IT services market.

Disruption

"Disruptive" is popularly used to mean all kinds of technology innovation, market transitions, and, in the absence of substance, to hype something new. I prefer Clayton Christensen's original definition: a *disruption* happens when a new technology, which may be inferior to the market segment's best-in-class technology, is good enough for segments of the market and is adopted because it is cheaper, more open, or more accessible.[10]

Incumbents have a hard time reacting to disruption because of the limitations imposed by serving their existing customers, business model, and cost structures. Open source software is a classic example. When Linux first appeared in the market, incumbent Unix vendors dismissed it as a toy for hobbyists.[11] Early Linux users were hackers and software enthusiasts, many of whom worked in enterprise IT departments. Over time, contributions from the open source community hardened Linux to a point where it became the de facto operating system for Internet applications and found its way to other segments, such as devices, embedded systems, and mainstream enterprise.

Business and Delivery Model

In the business and delivery model, market shifts become possible when technology enables a different paradigm of reaching customers, a different form factor to deliver a product or service, or both. For instance, the founders of Meraki (a company I worked with very closely) identified an opportunity to sell WiFi networking into the underserved mid-market segment, and they innovated on both the business and delivery fronts. On the delivery side, they created a solution that took the control of WiFi access points from on-premise to the Cloud. On the business end, they introduced a subscription service that was more easily consumed by the mid-market. Meraki beat incumbent Cisco with this model, and was eventually acquired by Cisco for $1.2 billion.[12]

Category Creation

Category creation is often promised and seldom delivered. New categories are created when the right combination of technology innovation, unmet market need,

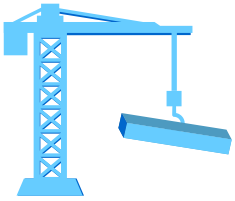
[10] See Clayton Christensen, *The Innovator's Dilemma: When New Technologies Cause Great Firms to Fail* (Boston: Harvard Business School Press, 1997).

[11] In September 2003, Scott McNealy, then CEO of Sun Microsystems, said that Linux was for "hobbyists," not enterprise IT shops, and that Linux's component approach to building a data center adds complexity and inefficiencies that run contrary to most business models. See Jan Stafford, "Sun CEO: Linux is for 'Hobbyists,' not Enterprise," *TechTarget*, 22 September 2003, http://searchenterpriselinux.techtarget.com/news/928789/Sun-CEO-Linux-is-for-hobbyists-not-enterprise. In March 2007, McNealy showed up in a Penguin outfit to Sun's annual meeting, indicating that Sun was throwing its lot in with Linux.

[12] Josh Constine, "Cisco Acquires Enterprise Wi-Fi Startup Meraki for $1.2 Billion in Cash," *TechCrunch*, 18 November 2012, https://techcrunch.com/2012/11/18/cisco-acquires-enterprise-wi-fi-startup-meraki-for-1-2-billion-in-cash/.

amazing team, and picture-perfect execution come together—it requires a perfect storm. Bill Gurley, a top venture investor with Benchmark Capital, said that the defining attitude for category creation is understanding "what could go right" instead of obsessing over what could go wrong.[13]

We recognize category creation as it picks up steam, and often in hindsight. Think Google in search, Facebook in social networking, or eBay and Alibaba in marketplaces. Although there isn't a single recipe for category creation, my observation is that the ingredients necessary to create new categories are increasingly scarce in high-tech incumbents.



Component 3: Create Strategic Underpinning

The third component in the framework lays out how a high-tech business can pivot from its current state to capitalize on the opportunities presented in market transitions—while guarding against the gravitational pull of businesses that may be on the wrong side of shifts.

To drive a high-tech business forward amid incessant technological and market changes requires a robust, flexible strategic underpinning that guides and informs decisions. In the words of the wise Yogi Berra, "You've got to be very careful if you don't know where you are going, because you might not get there."[14]

The task here is to create a compelling vision of what the business might look like 3, 5, and 7 years in the future, drawing on the map of market transitions and technology curves created while working through the framework's first two components. Two critical preparatory steps are necessary for success. First, perform a data-driven baseline analysis and inventory of the current state of the business, including a product portfolio, go-to-market, financials, and operational metrics.

Second, construct the vision for the future of the business without constraint by the current state of the business—in other words, work backward from the desired future state. Too often, I have seen high-tech strategy discussions stall because forecasting from the current state leads to stakeholders seeing too many institutional, technological, and talent barriers. The focus should be on its future state, informed by market transitions and the desired winning position.

Once there is a vision based on the current and future states of the business, then lay the strategic underpinning by creating a product portfolio plan and innovation model, and setting up the financial architecture. Together, these three pillars provide a flexible platform on which to build and guideposts for executing toward the vision.

The strategic underpinning should be organized in time horizons to map the journey from current state to future state. To do this, let's meet our friends Sam (**s**teady **a**nd **m**aturing), Tom (**t**op **o**f **m**ind), and Bob (**b**unch **o**f **b**ets)—I have found these shorthand names valuable when guiding strategy discussions and decision-making.

Figure 3 shows an illustrative strategic platform with guideposts for product, innovation, and financial metrics organized by the Sam, Tom, and Bob constructs. "Sam" businesses are on the wrong side of market transitions. They tend to be large, profitable, and the centers of gravity of any high-tech company. "Tom" businesses are today's rock stars. They are at scale, growing, and straddling market transitions. A "Bob" is just one of many potential stars of the future; they're fueled by hope and, many times, scarce investment capacity.

[13] On March 1, 2015, Bill Gurley (@bgurley) tweeted, "My partner Bruce Dunlevie once asked 'what could go right?' This is the defining attitude needed in VC investing. When they work.... Wow." This quote continues to be used to inspire entrepreneurs to think bold and big to create new categories.

[14] See Baseball Almanac, Inc., "Yogi Berra Quotes," 2016, quote 30, http://www.baseball-almanac.com/quotes/quoberra.shtml.

	SAM *Steady and Mature*	TOM *Top of Mind*	BOB *Bunch of Bets*
Characteristics			
Market Size / Growth	$5B+ / <5% CAGR	$1-5B / 5-25% CAGR	<$1B / 25%+ CAGR
Current Position	Currently #1 or #2	Winning share, transition	Evaluating entry, hype
Customer Spend View	Refresh-driven	Priority, active buying today	Proof-of-concept, 2-5 years out
Product Portfolio	• Rationalize, simplify products • Rely on partnerships, alliances for sales • Orient to channels, leveraged distribution	• Build features to fill segments • Create partnerships for platform stickiness • Place value on selling, feedback from market	• Focus on transitions • Prepare to pivot, exit, accelerate • Engage in missionary selling
Innovation Model	• Target market consolidation • Redeploy best talent • Exit subscale businesses	• Exercise multiple build, buy, partner options • Acquire category leaders • Invest to build ecosystem	• Invest for early market insights • Emphasize tech, early product acquisitions • Prioritize talent acquisition and retention
Financial Architecture	• Harvest operating margin • Build balance sheet, cash flows • Maintain lean operations	• Invest opex to win • Trade off margin for market share • Use balance sheet aggressively	• Focus on opex investments • Spread balance sheet bets • Support non-standard operations

Figure 3. Illustrative Strategic Underpinning. Author's figure.

All of the current and desired future state businesses should be mapped and organized into Sams, Toms, and Bobs. Once that's done, focus on building the platform for decision-making in each time horizon across three subcomponents of creating strategic underpinning: product portfolio, innovation model, and financial architecture.

Product Portfolio

Products are the lifeblood of any high-tech company. Product portfolio discipline across time horizons is essential to navigating and winning market transitions, and there are several imperatives for managing the product portfolio.

Products that fall in the "Sam" bucket are the stars of yesteryear. Mainframe for IBM, relational database for Oracle, switching and routing for Cisco, and Windows and Office for Microsoft. Through their growth phases, these products tend to generate sprawl in product versions, pricing, and go-to-market investments. As they mature, the focus should be on maintaining and incrementally growing share, reducing product complexity, and switching to more low-touch selling through channels, partners, and eCommerce.

"Toms" should be the highest priority in the product portfolio. Aggressive product roadmaps that drive adoption in segments, verticals, and geographies should be the center of product execution. For example, Amazon Web Services is winning the market transition to public Cloud because they have been relentless in delivering customer-desired

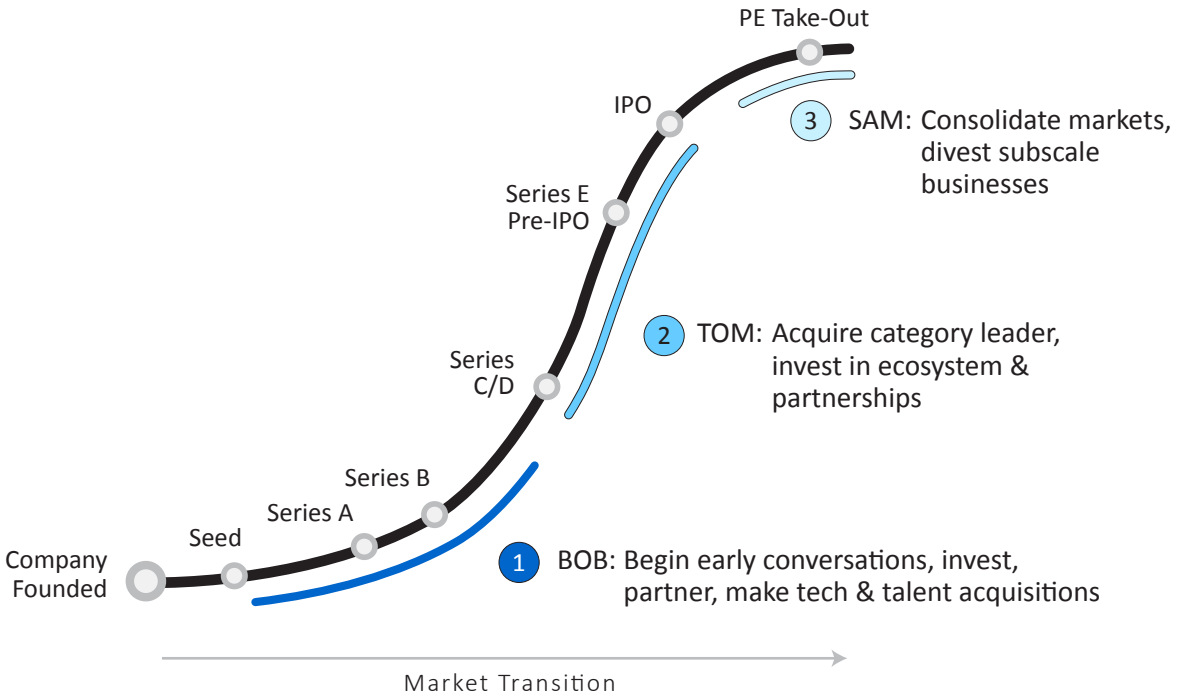


Figure 4. Pathfinder Model. Author's figure.

features[15] while driving pricing down[16] to spur market adoption.

"Bobs" are in training to be the Toms of the future. The product focus here should be on building small teams, maintaining speed, achieving product-market fit, and engaging in missionary, high-touch selling to early adopter customers. A portfolio of Bobs should be targeted at market transitions, and it should have a broader aim than just acquiring wins to build options for the future. Product leadership should constantly evaluate market, customer, and competitor signals to decide whether to accelerate, refocus, or exit specific Bob initiatives. Remember, Android was once a Bob at Google.[17]

[15] In April 2016, Amazon CEO Jeff Bezos wrote that AWS's constantly expanding roster of offerings was a key driver of the business unit's growth: "AWS is made up of many small teams with single-threaded owners, enabling rapid innovation. The team rolls out new functionality almost daily across 70 services, and that new functionality just 'shows up' for customers—there's no upgrading." See Gladys Rama, "Amazon CEO: AWS Is a $10 Billion Business," *AWS Insider.net*, 7 April 2016, paras. 6-7, https://awsinsider.net/articles/2016/04/07/aws-10-billion-business.aspx.

[16] In January 2016, AWS delivered its 51st price reduction since its founding in 2006. See Joseph Tsidulko, "AWS Delivers More Price Cuts to Ring in 2016," *CRN*, 5 January 2016, http://www.crn.com/news/cloud/300079269/aws-delivers-more-price-cuts-to-ring-in-2016.htm.

[17] Google acquired Android for about $50 million in 2005. Andy Rubin, the charismatic founder of Android, had both the vision and execution capacity to take Android from its humble beginning to today, when it powers billions of mobile phones.

Innovation Model

High-tech companies have to systematically plan for innovation across time horizons. By virtue, talent in engineering, research, and product development, most high-tech businesses can incrementally improve existing products and create very interesting point technology. Where these companies fall short is in setting up an innovation model that brings together the best of internal and external innovations, matches them to market transitions at the right time, and thus builds valuable businesses.

I use the Hewlett Packard Pathfinder approach here to walk through the innovation model. Pathfinder is a venture investments, partnerships, and strategy organization that I head at Hewlett Packard Enterprise. Figure 4 shows the role Pathfinder plays in market transition time horizons (Bob, Tom, and Sam), mapped to the evolution stages of innovative startups.

In the early stages of a market transition, Pathfinder plots a map of the external innovation ecosystem. Since $50-100 billion in venture capital is deployed worldwide behind innovation and disruption, it is important for every high-tech company to deeply understand this ecosystem, build relationships, and compare internal progress on next-horizon activities to the external market.

As the market transition hits inflection and customer adoption accelerates, Pathfinder provides vital feedback to leadership on the state of play, charting the players and identifying category leaders to acquire. As markets mature, Pathfinder helps pinpoint consolidation opportunities. Through understanding the next wave of market transitions, Pathfinder helps the executive team decide which of the current Sams are subscale and most likely to be disrupted by the next wave. This information drives divestiture timing and decisions, maximizing shareholder value.

Financial Architecture

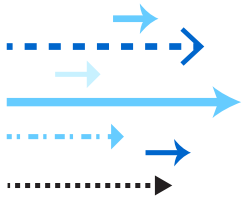
The mainstay of the strategic underpinning is financial discipline in allocating resources to the time horizons. Inertia in a large organization tends to drag resources into the largest businesses (Sams), underfund growth businesses (Toms), and smother next-horizon businesses (Bobs).

Sam businesses should be run at industry-leading operating margins. The goal here is to create opex (operational expenditure) capacity to fuel future growth, as well as balance sheet capacity for acquisitions and cyclical downturns. Usually the only correct acquisition is consolidation, with clear cost take-out plans to create overall market efficiency.

Tom businesses should be funded to grow to full capacity. If the answer to the question "What stops the business from growing faster?" is objectively "more resources" and not "customer demand," then leaders should look at all options to invest further. This investment can include a combination of internally providing more engineering, go-to-market, or operations capacity, and externally acquiring rapidly scaling new entrants.

Finally, Bobs require deft handling. Not every Bob is going to turn into a big business; therefore, resource allocation should be spread across bets, with constant calibration to divert capacity to the most promising Bobs. Well-thought-out tech and talent tuck-ins and small-scale acquisitions can help build the Bob portfolio, but these must be done with a longer time horizon in mind and at the lower end of balance sheet capacity.

Microsoft's ability to harvest resources from Windows and Office (Sams) and direct them to Azure (Bob) is an outstanding example of keeping the eye on winning market transitions while setting up the financial architecture to achieve the strategic imperative of winning in Cloud.



Component 4: Building and Executing

To build and execute for the future, a company requires appropriate leadership, discipline, talent, and ambition. While a framework such as this one cannot solve for these intangible qualities, of course, it is possible to present perspectives on the common issues faced by businesses in this phase and to develop empirical best practices.

The true North Star in this phase is winning with customers. In an ideal state, there is a virtuous loop of creating opportunities across time horizons, setting specific goals for execution, acting toward those goals, measuring feedback from customer success, and calibrating the next set of actions. Below, I share some of the practices that have worked in real life, and lessons learned from executing in the trenches.

Portfolio Transition

Product portfolio transitions happen with a series of measured actions over a market

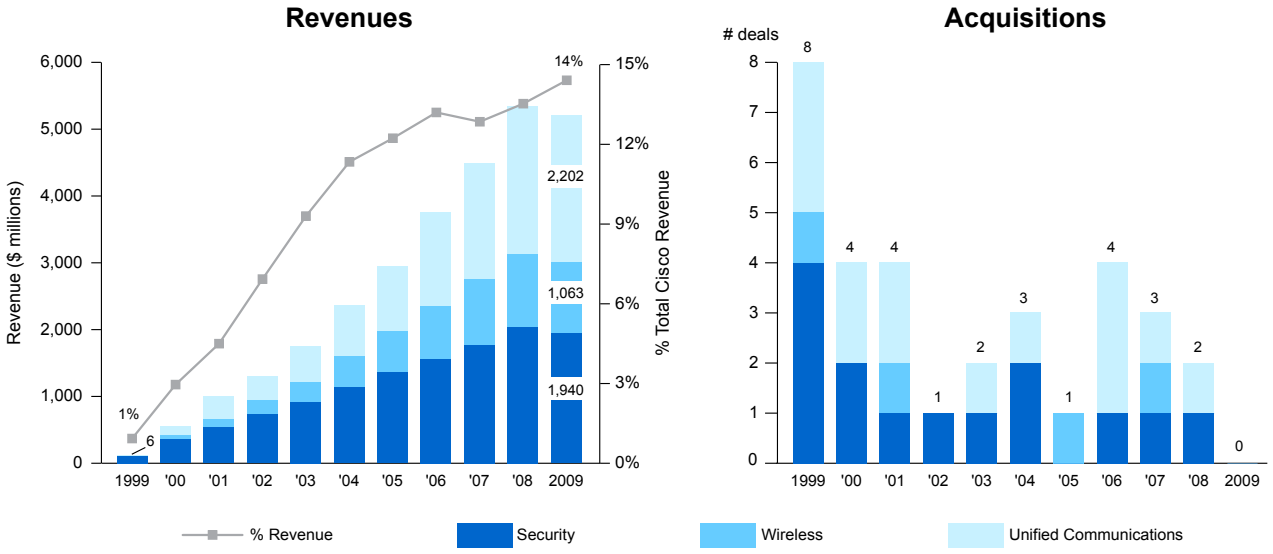


Figure 5. Portfolio Transition Example from Cisco. Author's figure; data from CapitalIQ, 451 Research.

transition cycle. Earlier, I mentioned Cisco's vision to transition up the networking stack with businesses in security, wireless, and unified communications, collectively labeled advanced technologies. How did they execute on the transition? Figure 5 shows how Cisco grew revenue over a decade in advanced technologies, backed by a consistent acquisition cadence.

Over the course of a decade, advanced technologies grew from single-digit millions in revenue to more than $4 billion, accounting for over 14% of Cisco's revenues, with a CAGR of 46% and over 30 acquisitions in these areas. This portfolio shift was aided by financial architecture in these new businesses that supported operating margins far below Cisco's overall average until each one reached a billion dollars in revenue.

I've learned a few lessons from living through portfolio transitions. First, any high-tech business should think about both build and buy options in its plans to maximize the opportunity offered by market transitions and stake out a winning position on the other side. Second, building new businesses will be margin-dilutive initially, so building must be funded by the productivity of the portfolio's Sams. Third, not every step toward the transition will be fruitful, so a vigorous innovation model is needed to persistently generate ideas and options to keep driving forward. Finally, long-term thinking is vital to transitions. When times turn tough, it is easy to kill the fledgling business because it does not have near-term impact, but it would be exactly the wrong thing to do.

Go-to-Market Transition

Go-to-market models in each of the time horizons are distinctly different. Sams require efficient generalist sales and partner-led distribution; on the other end of the spectrum, Bobs require missionary selling until product-market fit is achieved and a repeatable sales playbook is established. It is not uncommon for startup founders to spend more than half their time evangelizing their new offering to customers (see Matt Otterstatter, "Disrupting Healthcare: No Experience Needed"). High-tech sales models have also changed, shifting from high-touch to awareness, trial, and self-service models across both consumer and enterprise high-tech businesses. For instance, many Software as a Service (SaaS) startups use a combination of online marketing, product trial, and inside sales to sell to mid-market and small businesses.

Nevertheless, go-to-market motions have to match customer buying during market transitions. This means creating new pockets that can sustain the new type of

selling—from product design, to the type of salespeople, compensation, and back-end systems. Ultimately, getting the go-to-market transition is just as important as the portfolio transition to building and executing, if not more important—go-to-market is customer facing.

Organization & Talent Transition

It is people, with all their quirks, who work in high-tech businesses; it's no surprise then that organizations (a) reinforce certain actions and discourage others, and (b) end up having distinct cultures. When new businesses are being built and when organizations are in transition, incumbents and newcomers collide.

Below is a series of sanitized, anonymized quotes from my conversations on the front lines of these constructions and changes, in large organizations and small startups.

> We contribute over half the profits of this company. Why are we constantly being milked to fund unprofitable new businesses? Let them fend for themselves.
>
> They just paid a billion dollars to acquire us. The first thing they do is take away the free Coke machines. Seriously.
>
> My sales team used to be able to see their bonus numbers weekly when I was the CEO. Now, they don't even get targets until half the year has passed. Many of the best have left.
>
> Our board member was part of a hot startup two decades ago. He has not evolved since then and he can't stop giving us advice based on how he used to do it.
>
> Let's buy this company now because it will be expensive later. Let's not worry about how it fits our plans. It is hot now and we have to chase it.

The common theme across these conversations (and countless others) is that people are affected by upheavals. High-tech businesses have to work very hard at bringing their finest talent along while refreshing the organization's DNA with the new talent required for a successful transition. Then they must create a desirable and challenging work environment that attracts and retains top-shelf employees, because the talent's easy alternative is to walk next door to the new, hot company.

During a conversation with a famous Silicon Valley CEO about strategy, she stopped me and asked,

> So, you want to build a leading position in this space. Nice charts and plans. Now tell me, of the top 10 people in the space, how many work for your company?

This incredible insight has stayed with me. To build and attain leadership in a high-tech business, one must win the talent war in the new space.

Building a Differentiated Strategy for Your High-Tech Business

High tech is prone to tectonic shifts. Significant value accrues to companies on the right side of these shifts, while those that do not move fast enough don't survive to the next generation. My experience in the front lines of the industry supports my belief in high-tech strategy exceptionalism. The right strategy makes a huge difference in the midst of shifts; however, traditional strategic constructs fall short.

The framework I have described here is a practitioner's hands-on toolbox for building and executing a sustainable strategy in high tech. We started with how to methodically construct the big picture by understanding technology curves, market transitions, and the interplay between the two. We also examined the importance of building in a systematic capability to continually refine the big picture and prep for step functions. We then considered how to build the foundation for pivoting a high-tech business to the future, dissecting the product portfolio, innovation model, and financial architecture. Finally, we drilled down on how to build and execute through transitions.

I believe that this framework will help leaders see beyond the limited perspectives of traditional strategic and planning models to build a differentiated strategy for their high-tech businesses. In this article, I highlighted the impact of cloud, mobile, and social using the framework. We are on the cusp of the next wave of shifts. Cyber-physical systems, in which physical, networking and software components are deeply entwined, are set to profoundly change industries. Self-driving cars, drones, and augmented reality are precursors to what is becoming possible. Artificial intelligence, in which machines mimic human cognitive functions such as learning and problem solving, is seeing practical applications: Amazon Alexa[18] and Google DeepMind[19] are early illustrations. Using this framework, high-tech businesses can—and should—plan for these huge shifts, and position themselves as movers and winners over the next 5 to 10 years.

Finally, I exhort you, high-tech leader, to use this framework to act. Do not stay comfortable with your Sams. Build and buy Toms. Place your bets on Bobs. Acting does not guarantee success, but not acting will consign your business to the high-tech scrapyard.

Lak Ananth
Lak leads the Pathfinder organization for Hewlett Packard Enterprise (HPE). He conceived and built Pathfinder, bringing together innovation strategy, venture investments, acquisitions, and partnerships. Pathfinder invests $100 million a year in startups. In recognition of his pioneering work building Pathfinder, Global Corporate Venturing included him in the Top 25 Powerlist 2016. Before leading Pathfinder, Lak was a Vice President in strategy and corporate development at HP.

Lak worked in strategy and corporate development at Cisco Systems before joining HP. There, he was instrumental in the $2.9 billion acquisition of Starent Networks, the $1.2 billion acquisition of Meraki, and investment in Control4. Prior to Cisco, Lak was a venture capital investor in Silicon Valley. Earlier in his career, he was with 3i private equity in Asia, and he was also a Director with Cambridge Technology Partners in Silicon Valley.

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Disrupting Healthcare: No Experience Needed

Matt Otterstatter • VCs often turn away healthcare startups because of the truism that the founder must have healthcare experience in order to succeed—but is their assumption accurate? The author shares the surprising results of his research into this question, and the implications for healthcare.

The Future of VC in Spain: Time for a Track Record

Liz Fleming • Spain's venture capital industry has seen rapid growth in recent years with public and private investors playing a key role. To encourage more private funding, the author maps the LP landscape in Spain, reviews recent positive exits, and describes the rising stars of Spain's tech industry.

Amending the First Commandment of the Capitalist World: A Call to Action

Yoel Cheshin • Business leaders are urged to pursue an updated "first commandment of capitalism": to maximize welfare for all of the corporation's stakeholders, including the community and the environment. The author shares case studies demonstrating that this updated commandment can be pursued at the individual or organization levels.

Midcontinent Venture Capital—Growing in Leaps and Bounds

Aziz Gilani & Lauren-Kristine Pryzant • The middle of the United States is an up-and-coming venture capital market that has experienced steady growth in recent years. The authors share how growth has centered around states and cities that have developed engaged communities with a strong support system for startups.

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Lakshmikanth Ananth • Traditional strategic-analysis models have not been able to successfully handle the exceptional nature of high-tech markets. Drawing on his 20 years as an engineer, investor, and strategist, the author shares a 4-phase framework for high-tech strategy that plans for and even thrives on technological shifts.

Supporting an Entrepreneurial Mindset Among Estonian Youth: An "Entrepreneurs in Schools" Pilot Project

Marek Kiisa • Estonians have been slow to take advantage of the country's ideal climate for innovation—as in many countries with lingering cultural barriers to entrepreneurship. The author shares a simple yet impressively effective program to change those attitudes among young people through school visits by local entrepreneurs.

The Rising Tide: A "Learning-By-Investing" Initiative to Bridge the Gender Gap

Juliana Garaizar • The author outlines why angel investing can increase participation of women as investors and entrepreneurs. As part of the Rising Tide team, she helped create a simple, scalable, and global "learn by investing" fund model to educate women into becoming new angels and fund leads.

We welcome the members of the newest class of the Kauffman Fellows Program

Nik Berman

KaszeK Ventures

Josh Breinlinger

Jackson Square Ventures

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