Shellye Archambeau
Toni G. Atkins
Jay Banfield & Judy C. Miner
Cheri Bustos & Mike Fitzpatrick
Guy Gecht
Michelle K. Lee
Matthew R. Mahood
Janet Napolitano
Alex Padilla
Thomas E. Perez
Jessica Rosenworcel
Marco Rubio
Gary Shapiro
Maria Shriver
Godfrey Sullivan
Jorge Titinger
Raul Vazquez
Rick Wallace

GAME2015
CHANGERS
Ideas, Innovation, Inspiration
Welcome to “Game Changers”

“Market Street to Market Street.” That’s how my friend and colleague Emmett Carson of Silicon Valley Community Foundation and I describe Silicon Valley’s innovation economy. From “Market Street” in San Jose to “Market Street” in San Francisco - along with every city and town in between - we experience the hustle and bustle of entrepreneurs and innovators thriving and striving for creative solutions to some of our globe’s most complex problems.

Yet the problems we face in Silicon Valley and beyond are not limited to the next breakthrough in high-tech, bio-tech, med-tech, green-tech or clean-tech. We also face problems in civic affairs, public policy, citizen service and community-giving.

In our 4th edition of “Game Changers: Ideas, Inspiration & Innovation,” we explore the thoughts and thoughtfulness of 20 additional private and public sector leaders, poised and positioned to change the game of the innovation economy and to change the game at the local, regional, state, federal and international levels of engagement.

We hope you will be as inspired and challenged as we are in reading each of these essays. If you are, share the hard copy or on-line versions with friends, colleagues and neighbors. (Online at SVLG.org, with past editions.) Together, let’s ensure that this precious place we call Silicon Valley continues to lead the world, to change the game, to make a positive and proactive difference here and around the globe.

Sincerely,

Carl Guardino
CEO and President, Silicon Valley Leadership Group
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Let’s face it – humans are instinctively risk-averse. We tend to view risk as a negative “four letter word” – something that should be avoided, rather than embraced. But risk and opportunity are two sides of the same coin. If you know what your risks are, and you know how to manage them, you can actually thrive on risk.

Companies grow because we take risks. In fact, risk is inherent in everything we do – from making an investment, to introducing a new product or service. Every business decision comes with a risk – a downside, but also an opportunity – an upside, which needs to be equally understood. Yet I find that many businesses today lack the sufficient risk intelligence needed to make important decisions. As a result, they veer on the side of caution and avoid unchartered territory. This is dangerous, because without risk-taking, we don’t have innovation or sustained growth.

One example is the tablet market. From the 1980s until 2010, several companies tried – and failed – to successfully introduce tablets to the market. Their devices were either too costly or too large. When Apple launched the iPad in 2010, it took a big risk. The iPad has since gone on to revolutionize the mobile computing industry and has been followed by devices from other companies. Today, the tablet market is worth billions of dollars.

While there is no doubt that risk-taking is important in business, it is equally important in your own career. As someone who lives in Silicon Valley, I look around and feel blessed everyday. I think we might have one of the highest densities of risk-takers than anywhere else in the world. The result? Silicon Valley is home to some of the most influential, most innovative and most successful companies and people in the world.

Make no mistake about it; successful entrepreneurs who bring successful...
companies to life don’t rely on luck. Elon Musk took his earnings from the sale of PayPal to found two risky ventures – SpaceX and Tesla. Meg Whitman traded in her board role to take the helm of HP after years of declining market value. Both decisions paid off: Musk is one of today’s most influential and successful entrepreneurs; and under Whitman’s leadership, HP’s stock price has increased by 60 percent.

When I was interviewing for CEO roles in Silicon Valley in 2002 after the dot-com bubble burst, many people discouraged me. I chose not to listen and instead jumped on the opportunity to serve as CEO of a software company that had very strong technology, but not a clear market. At the time, the company was running out of cash and investors were starting to write it off, but I truly believed in the company’s technology strength and the power of the remaining investors and board of directors. So I took the risk. Today that company is MetricStream, the leader and largest independent software company in the Governance, Risk and Compliance (GRC) market, with customers around the world and a 50 percent year-over-year growth rate.

The most successful people I know aren’t afraid to take risks – but they do so in a methodical and logical manner. They’ve spent time measuring and analyzing the risk, so when it comes time to making a decision, they are prepared and ready for the outcome.

My advice: take a risk! Even if you don’t think you are ready for that promotion, that move overseas or that new business venture – analyze the risks, mitigate where necessary and just do it. Don’t be afraid to change the status quo. We must take risks to create opportunities.

Most recent tech purchase? iPad Air

Last book read? The Hard Thing About Hard Things

Mentor or role model? Bill Campbell, Chairman of Intuit

Most used app? aNote
President Obama has set an ambitious goal to end homelessness among veterans by the end of 2015. With 26 percent of the nation’s homeless veterans living in California, what happens here will be critical to reaching that goal.

Proposition 41, passed by California voters in June, is a good start, repurposing $600 million in already approved bond authority for veteran’s homeownership assistance to be used for affordable rental, transitional and emergency housing for homeless and low-income veterans. This targeted investment will allow us to create more permanent supportive housing and better address the full range of housing needs of our veterans, most of whom simply need affordable rental housing while they reintegrate into our communities.

We’ve seen targeted investment for specific populations work well in the past. Proposition 63, the Mental Health Services Act (MHSA), made $400 million available to county mental health departments to meet the supportive housing needs of those with a mental illness. When all developments are complete, these MHSA Housing Program funds are projected to result in 2,500 units of permanent supportive housing for individuals with serious mental illnesses.

This approach is not only the right thing to do, it’s also a good way to save money. On average, a single homeless Californian incurs $2,897 per month in county costs for emergency room visits, inpatient hospital stays, arrests and incarceration. Much of these costs - 79 percent - are curtailed when the same Californian finds an affordable place to live. Unfortunately, with funds from state housing bonds running dry and the elimination of redevelopment agencies, the availability of state dollars to leverage federal funds and private investment to pay for these affordable places to live is the lowest in years.

The confluence of funding reductions at the same time of an economic
recession created a perfect storm of increased demand at a time of reduced supply. Proof of a deepening crisis of affordable housing is all around us:

• California now has only a 54 percent homeownership rate, and at the end of 2013, the Los Angeles metro area became a majority renter area. Five of the eight lowest homeownership rates are in metropolitan areas in California.

• In addition to leading the nation in veteran homelessness, we also lead the nation in homelessness overall, with 22 percent of the nation’s homeless.

• Los Angeles and Orange County have been identified as the epicenter of overcrowded housing, and numerous studies have shown that children in crowded homes have poorer health, lower scores on math and reading tests and higher rates of depression and behavioral problems - even when poverty is taken into account.

Given these realities, I am committed to finding a permanent and sustainable resource to create more affordable multifamily and rental housing. Proposition 63 shows, as I believe Proposition 41 will show, that targeted investment in affordable housing works. But if we are to address the needs of our veterans - and all Californians - we must find a way to expand the target and extend affordable housing funding on a stable, permanent basis.

Most recent tech purchase? iPhone
Last book read? A Disorderly House
Mentor or role model? Senator Christine Kehoe
Most used app? Jawbone Up
History shows us that adaptability in the midst of economic transitions can yield broad and deep prosperity for employers, workers, and to the country as a whole. In today’s changing economy, our challenge is clear: we need our broad access postsecondary education systems (like community colleges), the private sector and nonprofit organizations to collaborate in new, tight and nimble ways. In order to truly get speed to market, we’ll need integrated training models that go beyond the partnerships we’ve seen to date.

In the early 20th century, rural America became more mechanized and manual farm labor became increasingly obsolete. Despite dire predictions, an integrated training approach ensured that America’s factories quickly absorbed displaced workers (and many more who immigrated from abroad), as well as their children, helping to bring about our greatest period of economic expansion.

The way this was done is not complicated. Public high school education became widespread. At the same time, large unions worked with employers to train workers for lifelong employment at a single company. These two central ideas – broad access to a baseline curriculum, and tight employer involvement in training – produced the most highly skilled workers on the planet, and set the stage for “the American century.”

Unfortunately, we have not been able to broadly replicate that same adaptability in the midst of continued economic transitions. For many reasons, the average millennial is expected to have 16 employers over the course of their lifetime. Employers in turn now look to maximize the probability that new hires can contribute early, before they move on. Lacking predictive assessments of grit, adaptability or motivation, means many are screened out because they are perceived to be riskier talent. Knowingly or not, these methods exclude the overwhelming majority of youth who grow up in a low-income neighborhood.

The social contract that powered past prosperity needs an update. Our broad access postsecondary education
systems today are underfunded and overwhelmed. The decline of single-firm, lifelong employment has led to a withdrawal of employers from workforce training and we are now losing out on a multitude of talent. If we are to successfully pivot in response to these realities, we will need to ensure a much tighter integration of education and employer demand.

We know this model can work in the 21st century as well as it did in the 20th. Working together, Year Up, its corporate partners and Foothill College, now place low-income students in living-wage careers within one year of enrollment. Eighty-five percent of Year Up alumni are employed or in school within four months of graduation, and those who are working earn an average of more than $19 per hour in the Bay Area.

As a country, we can’t afford not to make substantially more investments in such integrated models. At current rates, our economy will face a shortfall of 12 million skilled workers with postsecondary credentials by 2025. Meanwhile, 6 million young adults today are entirely disconnected from work and school, while millions more lack any connection to a stable career pathway. To thrive in the 21st century, we must integrate employer demand and our broad access education systems, to get skills to market faster than ever before.

Most recent tech purchase? Jabra speakerphone

Last book read? The Last Best League

Mentor or role model? Robert Kennedy

Most used app? Evernote

Most recent tech purchase? MacBook Air

Last book read? Conspiracy of Faith

Mentor or role model? Martha Kanter

Most used app? Open Table
It’s little wonder that constituents often ask us if the dark, sinister antics on the Netflix series House of Cards are based on real life. These days, the nation’s capital is seen, not as an enviable beacon of democracy, but as a den of petty partisan bickering and gamesmanship, where political ambitions often trump the best interests of the country and where little of value gets done.

While not quite rising to TV-drama levels of duplicity and scheming, our system of government is badly broken. But despite what we all may hear, common ground does exist among lawmakers from opposing parties.

Although one of us is a Democrat and one of us is a Republican, we both feel things can and should get done in Washington. Our constituents sent us to our nation’s Capital not to position and posture, but to use common sense and compromise to move our country forward.

This is why both of us embrace the ideas of the No Labels movement for problem solving, and have been identified as Congressional Problem Solvers. We represent a wide range of opinions and beliefs, but are united in the desire to put partisanship aside and work together to find common ground.

We surely don’t agree on every issue, but there are plenty of areas we can find to achieve results for the people we represent.

We both feel things can and should get done in Washington.

One area that everyone can agree on – both Democrats and Republicans – is the desire to root out and eliminate government waste and protect taxpayer money.

That desire is why we both support the bipartisan Government Waste Reduction Act [H.R. 530], a common sense bill that would reduce unnecessary duplicative government services, eliminate government waste and save hard-earned taxpayer dollars, while protecting the crucial programs upon which our neighbors rely.

The Government Waste Reduction Act would establish an independent government waste reduction board tasked with developing legislative proposals based on recommendations.
from the non-partisan Government Accountability Office (GAO) and sending them to Congress. Over the past four years, GAO’s duplication reports have identified a mother lode of potential savings – at least $200 billion annually.

To promote accountability, and to include multiple points of view, the board would consist of 15 members, six from the majority party and six from the minority party in both the House and Senate, and three from the Administration.

Cutting down on unnecessary government waste is a good step in the right direction as we strive toward getting our fiscal house in order without jeopardizing essential programs like Social Security and Medicare.

The Government Waste Reduction Act alone will not solve our fiscal problems, but it is a bipartisan starting point that holds tremendous potential for reducing our deficit.

We both come from hard-working districts where our neighbors expect their elected officials to put politics aside and do their job.

We hope our bipartisan bill not only is received as a common sense way to help reduce the deficit, but also can show the American people that governing in practical, common sense and reasonable ways is once again possible in Washington.

Most recent tech purchase?
Samsung Galaxy S5

Last book read?
Back to Work: Why We Need Smart Government for a Strong Economy

Mentor or role model?
My parents

Most used app?
Dropbox

Most recent tech purchase?
iPad keyboard

Last book read?
Revolutionary Summer: The Birth of American Independence

Mentor or role model?
My dad

Most used app?
Google Maps

Security and Medicare.
The printing industry discovered gravity the same way Isaac Newton did. The “Apple” that fell on the print industry’s head had names like iPhone and iPad. Almost overnight, people needed to print a lot fewer books, magazines, newspapers and office documents.

You might say, what’s the big deal?

At EFI, we recognized the gravity of the situation immediately: Beside the small point that all of our business came from the print industry, we were well aware that this industry, like no other, is built on hundreds of thousands of small businesses worldwide, and almost 100 percent are family-owned. We realized that finding an answer for our business would also mean finding some crucial help for others that depended on our industry – we were “all in” when it came to this mission.

Just like gravity, the answer has been around us all along, yet it took us some time to figure it out. Almost every object in our lives is imaged. We buy clothes because we like the way they look. We drive to the store in a car that has a certain color painted on it. At the store, we find what we are looking for based on signage, and then products in the store are packed in the most seductive, creative and informative way possible. Will that change any time soon? Can we imagine a world where we buy toothpaste in a blank box because the information is online? Not in our lifetime. Packaging will continue to be the selling point of products, and how regulators ensure that consumers get crucial information before they buy. It is a world where the “Imaging of Things” has a precious value.

Is the Imaging of Things vision limited to packaging and signage? Consider decorations like furniture, flooring, windows and glass. More and more, they are all being covered with printed images. When a “thing” is manufactured, part of the manufacturing process is to imprint an image on it.
all know that printers put great images on paper, but how can we print on all of those other materials that have a variety of shapes and textures? Thanks to inkjet technology, we can print on almost any material without even touching it. Put some tens of thousands of inkjet nozzles on a production line, feed them more than 500MB of data every second, and suddenly you can transform to on-demand printed manufacturing without slowing down. We can already match analog production lines of ceramic tile at speeds of 240 feet per minute, and we have our sight set on catching up to the fastest packaging production lines running at speeds of 2,000 linear feet per minute.

“Gravity” helped EFI discover the Imaging of Things. It’s the force that moves us and our customers closer to solutions. We are well on our way to be part of transforming not just the traditional print industry, but some very large industries such as signage, out of home advertising, tiles and packaging, and we are just getting started. It is a game changer for us, and more importantly for the thousands of family-owned businesses that are our customers. This is why we call it a mission.

Mentor or role model?
I was very lucky to have many.

Most used app?
Bridgebase

Most recent tech purchase?
DJI Phantom drone

Last book read?
The Hard Thing About Hard Things
Intellectual property, or IP as many of us refer to it, has never been more vital to our economy or more intricately woven throughout our lives. IP, not surprisingly, also surfaces as a topic of discussion far more broadly than it did even just a few years ago.

The current explosion of creative disruption across so many industries - and the legal challenges and strategies that have emerged from that disruption - requires the U.S. Patent and Trademark Office (USPTO) to more directly engage with both experts in IP and those new to the discussion. It requires a lean-forward approach, a philosophy of connecting with key communities outside of Washington, D.C., rather than a lean-back approach of waiting for those at the forefront of American innovation to find the resources and assistance of the government. A key element of this paradigm shift in government thinking is the USPTO’s launching of four regional offices, including one in Silicon Valley.

I was born and raised in the Valley, the product of an immigrant family with a father who was an engineer. I spent most of my career in the Valley working for, or on behalf of, tech companies small and large, and have worked across the IP landscape in almost every capacity of IP law - including prosecuting patents, asserting patents, defending against patent infringement, licensing, buying and selling patents, and advising on trade secret and copyright

The USPTO has a lean-forward perspective to preserving and promoting the world’s most advanced intellectual property system.
infringement matters. So I know firsthand how tremendously well-suited the Valley is to serve as home to a regional USPTO office.

It was that knowledge that inspired me to add a new chapter to my career as a public servant, after more than 20 years in the private sector, joining the agency in 2012 as the first director of its Silicon Valley office. My commitment to the mission of regional office outreach remains with me in my new role as Deputy Director of the agency, a position I took despite the fact it would require me to leave the Valley I so love.

The critical, game-changing role that our new regional offices play in connecting our headquarters in Alexandria, Virginia, with innovators and the public across all four continental U.S. time zones is already becoming clear. Expanding the geographic accessibility of the USPTO is proving to be far more than a way to recruit talented patent examiners and Patent Trial and Appeal Board judges, or merely ensuring that agency leaders are physically closer to the variety of unique innovation ecosystems around the country. These offices are serving as hubs of innovation, education and outreach, providing a full range of USPTO resources to support one of the most vibrant innovation communities in the nation, if not the world. As I noted, the USPTO has a lean-forward perspective to preserving and promoting the world’s most advanced intellectual property system. Working more closely with the creative minds and unique, world-changing ethos of the Silicon Valley, will ensure IP continues to fuel our nation’s leadership for many years to come.

Most recent tech purchase?
A high-quality digital camera

Last book read?
Drive – The Surprising Truth About What Motivates Us

Mentor or role model?
U.S. Secretary of Commerce Penny Pritzker

Most used app?
Waze
Pinned to my office wall is a list of 21 other wannabe regions in the U.S. and other countries, calling themselves Silicon Sandbar, Silicon Bayou, Silicon This or Silicon That, trying to be an imitation of our Silicon Valley. As if there could be another place like our transformative, world-changing Bay Area.

Few regions in world history have created more wealth than the Silicon Valley. The genesis of this success arises from the entrepreneurial spirit endemic in our institutions, businesses and a critical mass of smart people who like to collaborate, disrupt the status quo and change the world.

We are the location of the most patent filings, the center of the world’s venture capital market and home of the most innovative, era-changing companies. Our employees are highly educated, skilled and draw the best and brightest from around the world. Studies show they are committed to their companies and organizational success.

However, we could lose our status - if not our competitive edge in all of these areas - if we don’t stay vigilant. That’s why the San Jose Silicon Valley Chamber of Commerce has launched REDI - the Regional Economic Development Initiative. Our incredible economy has evolved organically more than it has been planned or strategized. To that end, there’s a real need for action as some of the competitive and strategic advantages of the San Jose Silicon Valley region have significantly diminished:

- The region faces increasing competition from out-of-state entities, initiatives and incentives.
- Globalization and technology have significantly changed the economic landscape.
- Regional advantages are not perceived as overcoming high costs.
- Key industries that once dominated our landscape are not necessarily expanding locally.

To maintain our competitive edge we’ve launched the Regional Economic Development Initiative.
• The elimination of redevelopment and enterprise zones caused local jurisdictions to lose their primary economic development tools.

• While the region leads the economic recovery, this recovery has been slower than anticipated - and has created fewer jobs across the entire economic spectrum - especially in the middle class.

Other regions across the country have established regional economic development efforts like REDI. Beginning in 2014 and 2015, the SJSV Chamber will roll out a multi-faceted action program that will:

• Promote the Silicon Valley as an ideal business location with a remarkable ecosystem that supports our business climate, culture and success.

• Augment local cities’ capacity to meet with significant employers and growing companies to show appreciation, assist with expansion and address any issues/opportunities.

• Serve as the regional concierge and advocate for business growth.

• Encourage new business creation throughout the region in driving industry sectors.

• Collaborate with like-minded organizations to develop outstanding data about the entire region’s demographics and being the best source for information on the region’s positive business attributes.

And though we can’t stop other regions from adopting “Silicon” in their titles, we can ensure that Silicon Valley is still the best choice both for start ups and global leaders, for local companies wanting to expand and for talented employees, of all skill levels, to call home.

Besides, who wants to work in some place called the Silicon Swamp?

Most recent tech purchase?
48” LED Flat Screen TV

Last book read?
Touching The Void

Mentor or role model?
Dr. Brice Harris, Chancellor of California Community Colleges

Most used app?
Google Maps
As a catalyst for social mobility, the University of California prides itself on its capacity to transform the future. Generations of high-achieving, hard-working California students have taken advantage of the rigorous academic experience UC provides to seize life-changing opportunities. Their successes have benefitted their families, community members, and, by extension, all Californians.

On that basis alone, one can make an argument that UC is a game-changing powerhouse. Add world-class research and scholarship into the mix with high-quality academics, and you have the equation for true transformation. Our goal is straightforward: UC teaches for California and researches for the world.

Since the University’s founding in 1868, UC’s transformative innovations have played a key role in the growth of every prominent California industry - from agriculture to biotechnology, computer engineering and alternative energy. UC inventions have jumpstarted more than 700 companies (71 in 2013), and millions of people have benefitted from the industry revolutions those discoveries inspired.

Consider the way UC aids our state’s $44.7 billion agriculture industry. After University researchers in the late 1800s discovered how to remove salts from the soils of California’s Central Valley, the region transformed into the most productive agricultural producer in the world. Ongoing breakthroughs in pest management, food processing, and irrigation increase crop yields and save growers millions of dollars every year.

For another example of how UC innovation transformed California, weigh the value of UCSF Professor Herbert Boyer’s pioneering research in recombinant DNA. His work not only led to the creation of the biotech industry - and the founding of Genentech - but also revolutionized the treatment of scores of life-threatening diseases.

Today, UC’s culture of entrepreneurial discovery is stronger than ever. Here is a small sample of innovation in action right now. UCLA engineering professor Yoram Cohen and Ph.D. student Zita...
Wu are developing Gray2Blue, a low-cost filtering system that transforms wastewater from showers, sinks and washing machines into high-quality irrigation water. At UC Davis, professor Ruihong Zhang invented an anaerobic digester that converts organic waste into renewable electricity. Sacramento-based CleanWorld, founded by alumni, is commercializing the technology. UCSF and Gladstone Institutes scientists are offering hope for treating liver failure with their discovery of how to transform skin cells into mature, fully functioning liver cells. At UC Riverside, researchers have identified scented compounds that can prevent disease-carrying mosquitoes from being attracted to human skin. Each of these discoveries, and the many hundreds more in progress at UC, have the potential to transform California and affect global change on a scale comparable to the achievements of those early agriculture and biotech researchers.

UC is committed to keeping the innovation pipeline flowing. The University educates 60 percent of California’s Ph.D.s and 70 percent of its STEM Ph.D.s. They will become tomorrow’s innovators. The fruits of their discoveries will result in products and resources for society’s benefit not only here in California, but also well beyond its borders.

The mission of a public research university such as UC is to instill in its students a passion for our public service mandate. For a century and a half, UC has held steadfastly to that public service mission - making California a better place to live, work and create. Looking to the future, UC’s transformational equation of education, research and scholarship must be preserved and enhanced. California’s vigor and vitality depends upon our willingness to safeguard this precious public resource.

The motto on the University seal reads Fiat Lux. Let there be light. It’s up to all Californians to keep that light shining brightly for future generations.
Moore’s Law asserts that the density of components on an integrated circuit increases exponentially. This has proven true for the past 50 years. Unfortunately, battery performance and energy storage, on which so many of our transformative technologies rely, have not experienced similar gains.

Our helpful portable devices, with all their apps and empowering functions, rely on limited batteries. We experience these limitations in our daily lives. And, as the functionality of our devices expands, the need to find a socket and recharge becomes more pressing. If we must constantly be on the lookout for a power source, are our devices truly “wireless” or just portable? While some new airport terminals include convenient power sources next to every seat, doesn’t this say more about the persistent limitation of battery technology than thoughtful interior design?

In the world of transportation, electric vehicles like the Tesla Model S, and the new Harley Davidson prototype LiveWire, are pushing the envelope with both style and performance, yet energy storage and range remain the greatest challenges of most electric vehicles. Like our mobile devices, battery limitation will keep drivers and riders regularly searching for a place to plug in, or swap out, batteries. Advanced storage technology could eliminate range anxiety and help us fully realize our electric vehicle goals.

Utility scale wind and solar energy generation are considered intermittent sources of renewable energy. When the wind dies down or clouds block the sun, we call upon other sources of generation - usually dependent on fossil fuels - to meet our electricity needs. Imagine if we could efficiently store wind energy at night when it is abundant and dispatch it during the day when demand is at its peak. And what if each of us could efficiently store at home excess rooftop solar power and use it as needed? While these ideas are not new, they...

Significant investment and advancement in battery performance and energy storage technology will unleash profound benefits.
have yet to be widely adopted.

I don’t expect that energy storage will enjoy a Moore’s Law era of exponential growth. The chemistry of batteries reflects a different set of laws altogether. But real, sustained progress must be made. We face an innovation bottleneck that must be addressed. Elon Musk’s recent announcement effectively making his proprietary battery technology “open source” is a visionary step. Will it result in a great leap forward? We must do more than hope.

Engineers at MIT and other major research institutions are working on a wide range of potential solutions for both portable and utility-scale storage. Nanomaterials are being applied with the goal of improving battery performance in our portable devices and electric vehicles, while quinones, organic molecules found in rhubarb, may help flow batteries better integrate renewable energy onto our electrical grid. Bill Gates’ investment in a number of energy storage startups is a strong signal that pressure is building for breakthroughs.

These breakthroughs will be “game changers.” They will unlock the potential of future technologies and allow us to make today’s technologies more efficient. Significant investment and advancement in battery performance and energy storage technology will unleash profound benefits for our nation and the world. I believe we should pursue all options with a Manhattan Project level of commitment and investment.

Most recent tech purchase?
iPhone 5

Last book read?
Unbroken

Mentor or role model?
U.S. Senator Dianne Feinstein

Most used app?
Facebook
Apprenticeship – training by doing (and getting paid for it) – is a tried-and-true approach to preparing people for work and transferring skills to a new generation.

In the 18th century, to meet the economic needs of the time, young people apprenticed as silversmiths, blacksmiths and cobblers. More recently, apprenticeship gave us the iron workers and welders who built the infrastructure that powered the economic boom of the mid-20th century.

And despite the conventional wisdom, apprenticeship is just as relevant for a more complex 21st century economy, with the potential to make a game-changing impact on workforce development in the years to come.

Some of my most inspiring visits as Labor Secretary have been to apprenticeship facilities. At Philadelphia’s Finishing Trades Institute, inner-city youth can become painters and drywall finishers earning upward of $20 per hour. In San Francisco, a young journeyman told me excitedly that his electrical apprenticeship program had given him his “golden ticket.” (He must be a Willy Wonka fan).

But let’s not pigeonhole apprenticeships. They’re not just for so-called blue collar professions like construction. This learn-while-you-earn model works in information technology, health care, energy and cybersecurity as well. That plumber or HVAC technician you trust – she may have apprenticed, but so too may the woman who uses her hands to write code instead of to fix sinks or inspect air ducts.

BlueCross BlueShield has an apprenticeship program in IT. The Service Employees International Union has one in home care – a high-demand field given our rapidly aging population. I toured a community college in San Antonio where a Labor Department grant is helping apprentices acquire competencies in mechatronics.

New innovations like pre-apprenticeship and competency-based apprenticeship could provide a fast track to many of today’s in-demand IT occupations. Apprenticeships can also provide
a foot in the door for women, minorities and veterans who are underrepresented in IT.

Apprenticeships offer an impressive return on investment for everyone with skin in the game. Workers get higher earnings and a springboard into the middle class. Employers build a pipeline of skilled workers to stay on the competitive cutting edge. And for taxpayers, every dollar spent on apprenticeship provides $27 in benefits.

So, the Obama Administration is making apprenticeship a linchpin of its job-driven approach to workforce programs. This fall, we will award $100 million in grants to promote apprenticeship in high-growth industries. President Obama has called on Congress to create a $2 billion training fund, with the goal of doubling the number of apprentices over the next five years. And we’re committed to doing our part within the government, working across federal agencies to take to scale successful apprenticeship programs at the military, the Labor Department and the U.S. Mint.

This is a policy challenge and an outreach challenge. We need to change budget priorities, but also mindsets. So many families and educators believe a bachelor’s degree is the only road to economic security, but apprenticeship offers a career pathway just as promising. Let’s think of apprenticeship as the other 4-year degree – minus the tuition sticker shock and the student loan payments.

Apprenticeship is a common-sense, time-tested idea in wide practice globally. As long as we’ve needed good workers, we’ve had apprenticeships – why stop now? It has its roots in medieval guilds, but apprenticeship is anything but anachronistic. 21st century apprenticeship is, in fact, essential to a prosperous American future.
Few of us go anywhere now without mobile devices in our palms, pockets or purses. But as commonplace as wireless service may feel in our lives today, the truth is we are just getting started. Over the next five years, worldwide demand for mobile service is expected to grow by 11 times. As the Internet of Things emerges, wireless functionality will become a part of nearly everything we do. By the end of the decade, we may have as many as 50 billion machine-to-machine devices communicating wirelessly worldwide.

Back in the here and now, all of this wireless demand has consequences for a scarce resource: spectrum. The airwaves around us that carry so much of our modern communications and that are responsible for so much of our modern wireless economy — are finite. The iron laws of physics being what they are, we are simply not making more. So the challenge is to use the spectrum we have more efficiently.

There are many things we can and should do to be more efficient with this scarce resource — from improving network technology to improving network topology. But we also need to rethink how we allocate our airwaves — and in particular airwaves used by the federal government.

Today, federal authorities use a big chunk of our airwaves. They have substantial spectrum assignments. This makes sense because critical missions throughout the government are dependent on wireless services. Federal government systems that rely on spectrum help protect us from attack, like early missile warning systems. They help manage our air traffic, enhance our crop productivity and monitor our water supplies.

Traditionally, when commercial spectrum demands rise, we go to these federal authorities and put on the pressure. We urge, coax and cajole them in an effort to free old government airwaves for new private sector use. If they agree, we clear govern-
ment users out of their airwaves, relocate them to others, and eventually auction the cleared spectrum for commercial use. With the tremendous demands on our airwaves today we could do this again, just as we have in the past. But it’s a creaky system. It’s not reliable. It’s not consistent. It takes too long. It’s not the spectrum pipeline we need for the modern wireless economy.

A better system — a better spectrum pipeline — would be based on incentives. In short, we need to develop incentives that can reward federal authorities for efficient use of their airwaves and free more spectrum for commercial use in the process. These incentives could be straightforward and financial. For instance, we could pay federal authorities with revenue from the subsequent commercial auction of their cleared airwaves. Or we could look at other alternatives, like providing a boost in cabinet or agency budgets in response to vacating old spectrum assignments. As part of this effort, we could develop a valuation of all spectrum used by federal authorities, in order to provide a consistent way to reward efficiency.

Building an incentive system like this would free up more spectrum with greater reliability for the modern wireless economy. It would help make federal authorities using spectrum see benefit in commercial reallocation — rather than just loss. At the same time, this could make federal users reassess their systems, some of which may be past their technological prime. Given the growing demands on our airwaves, developing a more reliable, incentive-based spectrum pipeline is necessary — and now is the time.
Our higher education system is in desperate need of a game changer. To ensure the American Dream is accessible to everyone in this century, we need reforms that bring higher education within reach of people of all walks of life.

The job market has changed dramatically in recent years, yet our higher education system has failed to adapt to accommodate the millions of Americans who now need a higher education to access 21st century jobs.

That’s why I have spent much of this year introducing game changing reforms that will increase flexibility, decrease costs, and bring higher education within reach of everyone from young students to single moms to working parents.

My reforms focus on using technology to transform our methods of acquiring employable skills. The Internet is the single greatest tool for the spread of knowledge since the advent of the printing press, yet a broken process called accreditation has prevented it from bringing an education within reach of everyone.

Accreditation is the process by which institutions become certified to provide degrees, but it is controlled by established colleges and universities, which use it to block out cheaper and more accessible competitors. To fix this, I have proposed that Congress establish a new, independent accrediting entity geared toward affordable and accessible providers of post-secondary education.

This would fundamentally change higher education in America as we know it. People could finally get credit for what they already learn using all the resources around them. A single mom could earn an employable degree from the comfort of her living room without having to break her already
tight budget. A young man could augment his existing business degree with a certification in software development without having to quit his current job.

We also need to reduce the number of graduates with staggering student debt. To this end, I have proposed a bill that would require colleges and universities to provide students with information on how much a given degree is likely to cost them versus how much it is likely to yield in future salary.

Of course, there will always be the risk that the cost of a degree won’t pay off as quickly or completely as a student hopes. That is why I am currently working on bipartisan legislation to streamline income-based repayment, which allows graduates’ loan payments to be determined by how much they earn. So someone who lands a high paying job would pay a higher percentage of their loan each year than someone who works for minimum wage.

To save the American Dream, we must equip our people to prosper in this century. We cannot do this with a higher education system built before computers or the Internet even existed. Modernization will require full measures of reform. We need bold and innovative changes, not timid tweaks to tired 20th century policies. The continued success of our nation demands a game changer for higher education; let’s not settle for less.

Most recent tech purchase? iPad
Last book read? Unleashing the Second American Century
Mentor or role model? My grandfather
Most used app? ESPN
Without spectrum - the invisible airwaves that carry data to and from our wireless devices - the smartphones, tablets and other electronics we rely on would not function. Spectrum is also essential to ensuring a well-functioning economy. And the Consumer Electronics Association’s (CEA®) most recent study finds that unlicensed spectrum - which supports services like Wi-Fi - contributes $62 billion annually to the U.S. economy in terms of device sales alone.

Unlicensed spectrum powers many of the devices that keep us connected and make our day-to-day lives a little easier, such as Wi-Fi-enabled tablets, Bluetooth-powered hands-free technology, even our garage door openers. Like the Internet, unlicensed spectrum encourages innovation, enabling entrepreneurs to harness a communications medium - radio spectrum - to connect people and devices wirelessly.

But all spectrum - licensed and unlicensed - is a limited resource. Data shows that much more spectrum will be needed to supply our ever-growing demand for content. The coming year will present critical opportunities for regulators to reallocate broadcast television spectrum for commercial wireless use, opening pathways to further innovation and connectivity.

At one time, broadcast was the only way to receive video programming, which viewers received through an antenna. The importance of this service, and the abundance of available spectrum at the time, permitted the federal government to give television broadcasters free access to spectrum. In exchange, the broadcasters had to offer their programming to viewers for free. Today, that model has been flipped on its head: 94 percent of consumers no longer rely on an antenna. They instead watch video programming via some kind of paid subscription or Internet-delivered television, rendering traditional “over-the-air” television largely obsolete.

At the same time, people are increas-
ingly demanding “anywhere, anytime” connectivity to friends, family, work, information and entertainment. Mobile providers want to offer this connectivity, but their ability to do so is becoming more difficult as our spectrum supply runs low. Meanwhile, TV broadcasters sit on spectrum licensed to them more than 70 years ago.

It’s time for broadcasters to respect consumers’ needs and sell their underused spectrum to mobile providers. Fortunately, in 2012 Congress cleared the way for reallocating this spectrum through voluntary auctions. The resulting auctions, which are scheduled to begin in 2015, will give wireless providers the resources they need to continue offering valuable services to the public.

Free and fair competition must drive the upcoming spectrum auctions. Already, some are concerned that a few major mobile services providers will snatch up the available spectrum, giving smaller companies no opportunity to compete. One suggestion is to limit how much spectrum any one company can hold. But mandates like these are rigid and don’t take into account competitive market forces. Rather than imposing market caps, government should step back and allow all providers to compete for the auctioned spectrum on a level playing field.

By auctioning off unused spectrum, broadcasters will send the clear message to consumers that they value progress and innovation. Innovation disrupts static industries, completely upending the way we live - for the better. Yet businesses learn to adapt, think outside the box and get to the next great idea ahead of their competitors. With access to previously untapped spectrum, mobile providers will have the resources they need to expand and innovate.

Most recent tech purchase? Smartphone
Last book read? Lean In
Mentor or role model? My Father
Most used app? Navigation
Fifty years after Lyndon B. Johnson declared a war on poverty, women are the new face of economic insecurity in this country — and The Shriver Report is telling the story.

This year’s third Shriver Report: A Woman’s Nation Pushes Back from the Brink put a glaring spotlight on the news that one in three American women lives on or over the brink of poverty or churning in and out of it. This Shriver Report is a high-profile multi-platform investigation into how and why an astonishing 42 million American women and the 28 million children who depend on them live in economic jeopardy and what to do about it.

These women aren’t on welfare. They’re working. They work in our offices and schools, care for our children, stand in line next to us at the supermarket, sit next to us in church. Still, they’re living just one broken bone, one flat tire, one missed paycheck away from having to choose between putting food on the table or paying the rent.

This Shriver Report exploded into the national consciousness with a high-impact examination of these working and caregiving women who are the backbone of our economy:

• Two-thirds of American families depend either partly or wholly on the wages of working women.
• But women earn only 77 cents for every dollar a man earns in the same job (minority women even less).
• Almost 70 percent of minimum wage workers are women, and most of them don’t get even one sick day, let alone flex time to care for sick kids or elderly parents.

These women are the game changers of this century. Today, when women are half the U.S. workforce, the bottom line is this: Leave out the women, and you don’t have a full and robust economy. Lead with the women, and you do. It’s that simple, and Americans know it.

More than 70 percent of the 3,500 people we polled for The Shriver Report said women’s financial contribution to our national economy is essential. And we delivered the proof: Economists told
The Shriver Report for the first time that closing the wage gap between men and women would cut the poverty rate in half, adding nearly half a trillion dollars to the national economy.

The Shriver Reports is a non-profit media initiative examining seismic societal shifts affecting American women today. We have the reach, the reputation, the expertise and the time to dig deep and get the whole picture, so rare in the news business today. We are unmatched in our breadth and depth across multiple platforms: Analysis by experts, our own enormous national opinion poll, scores of illuminating personal essays from a wide spectrum of Americans – from everyday people to entertainment and sports celebrities, politicians and renowned academics, plus award-winning photography, videos, online, broadcast and print campaigns, live events, strategic partnerships with a bipartisan network of people and organizations working in the trenches.

The Shriver Reports have ignited national conversations: Special weeks of broadcasts on NBC and ABC News, TIME magazine cover stories, hearings in Congress, passage of historic legislation, White House reports and pilot projects. This latest Report has had nearly two billion media impressions and 400 million impressions on Facebook and Twitter so far.

Will women get the changes they need in our laws and business practices, so their families can survive and thrive? Will more news organizations have to go non-profit in order to be able to cover huge stories in-depth and still survive and thrive? The game is changing — for both American woman and American journalism. And the intersection is The Shriver Report.

Most recent tech purchase? iPhone


Mentor or role model? Eunice Kennedy Shriver

Most used app? Twitter
I was introduced as the new CEO of Splunk in a room full of early employees at a disruptive, scrappy startup. Previously, I had sold a company to Oracle, and the first question asked was, “Are you here to sell us?” The opposite was true, but no one knew me and no one knew whether I was telling the truth or just saying what they wanted to hear. Trust and openness are key Splunk values, but I hadn’t proven myself yet and had some work to do.

The first months on the job are critical. You’re setting the tone and balance for how you will lead. The worst thing a new CEO can do is to start making decisions and judgments based on what worked somewhere else. Trust goes out the door along with disillusioned employees.

My first desk was an open cubicle positioned near a high-traffic area (the restrooms!) with chairs nearby for impromptu chats. What I heard from Splunkers was that our product was disruptive – solving real problems in minutes or hours that used to take days. Our customers were happy. Engineering was about ready to ship a new version of Splunk Enterprise that would change the course of Splunk history.

Applying lessons from “Situational Leadership Theory,” I hit the road for three months and spoke with as many customers as possible. They told me a different story – essentially, “your products are incredible but stop testing new versions on us.” That feedback led to my first major decision at Splunk – to delay a huge product release by several months to ensure we had a fully tested product to ship. While the decision was controversial, by this time I understood the business and had gained trust from the founders and employees. Slowing down ultimately enabled us to accelerate our product velocity and market leadership.

Difficult decisions are never easy, but they are possible when trust has been earned.
earned. Based on my early learnings, I developed a set of leadership principles that we use today. These principles are different than values – they are designed to give every employee the permission to make that hard or unpopular decision. A few examples of Splunk’s leadership principles include:

- Be open – transparency always wins.
- Be a situational leader – do what’s right in this moment.
- Bad news does not get better with age – tell me early so that I can take action.
- Praise in public, criticize in private – treat everyone with dignity and respect.
- Use the 24 hour rule to settle disagreements – don’t let hard feelings linger.
- No surprises in a performance review – managers owe their teams continual feedback.

The global economic crisis of 2008-2009 forced our team to make many hard decisions, including cost structure, cash burn rate and headcount. We survived those challenges because we had developed trust as a team, and because we adopted common leadership principles that are visible to our employees. We survived those hard years and went on to deliver a successful IPO in 2012.

Today, we have more than 1,000 employees and 7,400 customers worldwide, and our organization has matured in many ways. Our focus on preserving an open culture, and living by our leadership principles, has enabled us to focus on building products our customers love and a brand that stands for customer success.
Over the last several years, we have seen a real change in the high performance computing (HPC) landscape, with an increasingly large number of industries finding useful and innovative applications for this technology. What HPC has done for numerous industries in many ways is comparable to what the microscope has done for the medical industry. It has enabled organizations to closely analyze massive amounts of information from which to glean actionable insights, inevitably changing the way we interact with and view the world.

This HPC technology has allowed us to review and analyze unprecedented amounts of information in real time, so we can obtain game-changing information-centric insights. For example, a large international postal carrier has been able to drastically reduce mail fraud by deploying SGI and FedCentric HPC technology that reviews every one of its 528 million pieces of daily mail at an average of 6,100 pieces per second. While, in a vastly different application, Harvard Medical School and Massachusetts General Hospital are using the same technology to perform the massive, real-time calculations necessary for new techniques to diagnose and treat many life-threatening illnesses. Each year we see organizations applying data-intensive technologies in ways we couldn’t have imagined a couple years before, let alone the applications and benefits we are bound to see in the next 20 years.

What we are seeing as an industry is a real need for a flexible technology infrastructure that enables organizations to manage all different types of structured and unstructured data.
Thanks to the years of research and testing of HPC technologies in the scientific sector, it has evolved to provide the powerful, scalable and flexible solutions that enterprises now require to help them best visualize, analyze and manage very large amounts of data in real time. There are three data-centric platforms that come to mind when pinpointing the trends we are seeing as HPC becomes more widely used in the enterprise: in-memory technologies (like SAP HANA), cloud-enabled analytics applications and Hadoop.

These technologies are helping the companies who are behind our smartphones, browsers, GPS and just about anything connected to the internet, to automate insights, innovate faster and bring products more quickly to market. The sources of data are growing every day; the Internet of Things is driving this growth; and the value comes from the insights that can be obtained from all of this information.

At SGI, we are excited to be in a unique position to work in the areas of enterprise, research and academia, and government. We are headquartered in the heart of Silicon Valley and have deep expertise in high performance computing, data management and data analysis. As organizations continue to process information to gain a competitive advantage, make faster and more insightful business decisions, lower costs and fuel growth, SGI is looking forward to helping them navigate through their data so they can best take advantage of it.

Most recent tech purchase? Ford Fusion Energi
Last book read? The Challenger Sale
Mentor or role model? Russell Redenbaugh
Most used app? ASANA
In the U.S., a good credit score is among a person’s most valuable assets. It provides access to affordable credit and, through that, better opportunities in education, employment, and housing. Without a credit score or with a very thin credit file, you are relegated to the shadows of the economy with limited and expensive options.

There are more than 33 million households in the U.S. that are “unbanked or under banked” according to data published by the FDIC. The same study shows that higher shares of black (63.8 percent) and Hispanic (54.4 percent) households have used alternate financial services, which generally have higher fees and interest charges than mainstream alternatives. Using FDIC and Census Bureau data, we estimate that these higher costs affect close to 23 million Hispanics.

Access to financial services and to affordable credit is directly connected to jobs and the economy. Access to financial services and to affordable credit is directly connected to jobs and the economy. which are top issues concerning Hispanics in the U.S. While education ranks at the top of the list of “extremely important” issues in a recent publication by Pew Research Center’s Fact Tank, jobs and the economy closely follow, selected by 54 percent of respondents. This should not be surprising considering that the average rate of unemployment among Hispanics has been higher than the average (10.3 percent vs. 8.1 percent).

In 2005, Progreso Financiero was established with the mission of helping Hispanic individuals, who lack or have limited credit scores, gain access to affordable and responsibly constructed credit. We are focused on serving a population that most financial services firms cannot properly assess. We are pioneers in the application of data science and technology to power our proprietary underwriting platform which scores 100 percent of our customers, the majority of whom had no credit score at all.
From a customer perspective, we’ve designed our products and service to meet their specific needs – our locations are in neighborhoods where our customers live and work, are open seven days a week, and are staffed by Spanish speakers from the community. Enabling our customers’ progress is our biggest source of pride and satisfaction. Our loans, which are unsecured and range between $500 and $5,000, help our customers with a pressing financial need like medical care or fixing a car, or fulfill a wish for a better life for themselves or their loved ones through education or entrepreneurship. Yet the positive impact stretches beyond the immediate need – our customers are establishing and building credit scores, and setting themselves up for a more positive financial future. After three successful small loans, our customers have been able to establish a median VantageScore® of 672. And with more than $1 billion loaned and more than 370,000 customers served, we estimate that our customers have saved at least $170 million in fees and interest charges that might have otherwise been paid to short-term lenders that don’t help customers build credit scores.

Our approach has proven successful and meaningful. We are proud to have introduced innovation to the financial services sector focused on underserved segments.

Most recent tech purchase?
Kindle Paperwhite

Mentor or role model?
My parents

Last book read?
The Social Animal

Most used app?
Spotify
The tools built by KLA-Tencor enable the production of every microchip on the planet driving all aspects of our technological world. We’re part of an elite group of U.S. companies who collectively produce 40 percent of the world’s semiconductor manufacturing equipment and, as an industry, employ more than 350,000 people. We make possible $1.3 trillion worth of electronic equipment to be sold annually.

In light of this, U.S. leadership in semiconductor equipment manufacturing is at risk because our industry’s growth engine is quickly running out of two key fuel sources - R&D and talent.

Historically, the U.S. scientific innovation infrastructure consisted of a loose public-private partnership that included legendary institutions such as Bell Labs, and research operations like DARPA (formed by the Eisenhower Administration to ensure American expertise in science and engineering would lead the world). Following this model, programs with clear commercial potential were supported alongside efforts of pure research, with these two streams designed to feed one another.

Today, there is a broken link in the business model. While our industry invests 15 percent of annual revenue into intensive R&D, the government invests virtually nothing. As a direct consequence, the sheer cost of developing new technology is threatening to bog down progress.

Exactly the opposite is happening in China, Taiwan and South Korea where government incentives for high-end equipment manufacturing are strategically important.

But money is not the central problem.

Science has lost its allure as the domain for our nation’s brightest students and we are simply not producing enough talent.
According to a recent report by the National Academy of Sciences, only 4 percent of the entire U.S. work force is composed of scientists and engineers.

The talent issue is exacerbated by the fact that - for a nation of immigrants - we have a fundamentally unfit immigration policy. More than 40 percent of U.S. master’s and doctoral students in engineering are from abroad, yet only a small fraction are allowed to remain here. We seem to have forgotten that those who move to the U.S. tend to become prodigious employment creators. First-generation immigrants and their children had founder roles in more than 40 percent of the Fortune 500.

Our industry was built on the foundation of initial discovery at Bell Labs. We subsequently unleashed cycles of applied innovation that created entirely new economies. Without long-term open-ended research and extraordinary talent from around the world, thousands of “game changing” companies and millions of high-paying jobs might never have come to life.

At KLA-Tencor we’re lobbying Washington and supporting educational programs with an emphasis on science, technology, engineering and mathematics. I invite you to join us. Together we can change the way we innovate by re-establishing a culture that celebrates those who are willing to work on tough problems, even if the commercial return is less than certain. Relative to other spending, it will not require massive investment. The cumulative impact will, however, be a surefire game changer.

Most recent tech purchase? Tesla

Last book read? Unbroken

Mentor or role model? David Sciaky (grandfather)

Most used app? Strava
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