

America's Comeback Starts with American Innovators

By Gary Shapiro

Welcome to our "Soapbox." I expect that this section will become a regular feature of *IEEE Consumer Electronics Magazine*. Why? Because here we will make our magazine open to leaders and senior members of the CE industry and associated communities. You will also read the ideas, opinions, and future predictions of some of the leading thinkers and visionaries from our industry. They may not follow the popular rhetoric or pander to what the establishment views are; in fact, it is a prerequisite that they should not. You will find people talking with passion, inspiration, and raw gut feeling about our industry, what it is doing, and point out where there are problems and deficiencies. Also, you'll find new ideas and thoughts about the future, going beyond the engineering and technology; you will find a holistic approach that considers the social and economic impacts of our industry.

We will tackle sensitive issues such as sustainability, energy, and environmental impact. Here, we'll consider the global perspective as well as the national. You may not always agree with what you read here and at times you may even find it disagreeable, but if we are to seriously engage with difficult and complicated issues faced by our industry, then we need a free and open platform for leaders in our industry to present their open and unfettered views. Note that the views of invited presenters are not necessarily those of the IEEE or the editor. The "Soapbox" is an open platform and those invited are free to express their opinions and views openly. If you would like an invitation, please contact the editor at cesmagazine@ieee.org or cesmagazine@gmail.com

For our first issue of *IEEE Consumer Electronics Magazine*, I am pleased to introduce the president and CEO of the Consumer Electronics Association (CEA), Gary Shapiro, to step up to our first "Soapbox."
—Editor



Gary Shapiro

year, with more than 16.5 million units shipped in 2011 (Figures 1 and 2).

We are fortunate to work in an industry where the products are redefining—and reimagining—the way human beings work and live. As the CEO and president of CEA, I am fortunate to have spent my entire career on the cutting edge of innovation. From the VCR to the CD to the PC, I've seen how our industry has pushed the boundaries of the possible. I've also seen, many times, more products whose awesome potential was never realized. The success of our industry is paved with failures.

But that's the way of innovation, isn't it? It's the way our industry, going back to the first recording devices and music players, has been able to dream the impossible—and make it happen. Every setback is just another route on the road to success. And no one can deny the success the CE industry has achieved. In short, to borrow a famous refrain, the state of our industry is strong.

First, some good news: According to the Consumer Electronics Association (CEA) semiannual forecast, our industry is thriving. With overall shipments surpassing US\$190 billion in revenue in 2011, the industry's growth rate exceeds that of the U.S. economy. By next year, shipment revenues are expected to hit an all time of US\$197 billion.

Indeed, CE is something of a golden age at the moment. Sales of tablet computers are expected to grow 157% this year, generating more than US\$14 billion in revenue. The sale of smartphones will reach US\$23 billion, and there's no telling how high this market will reach. A 2011 Pew Research study estimates that by 2020 wireless devices will be the primary connection vehicles that a majority of global consumers will use to access the Internet. Another relative newcomer on the block, e-reader sales will double this

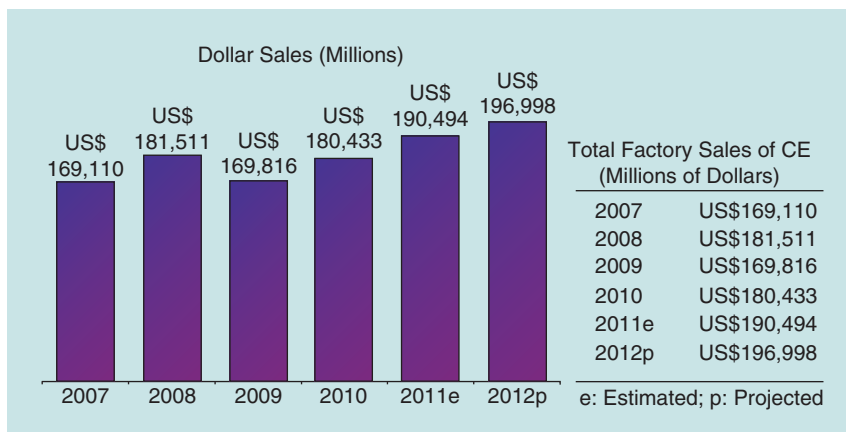


FIGURE 1. Sales revenues from CE products continues to grow despite recession.

So why am I not completely optimistic about the future? Well, it has something to do with 9% unemployment. It has something to do with a gross domestic product growth rate that barely tops 1%. It has something to do with a US\$15 trillion in the U.S. debt. But it also goes deeper than the economic figures. For example, more Americans than ever

are dependent on the government for everything, from health care to food stamps.

There's something terribly wrong about the direction of our country. No matter what side of the political divide one sits on, no one can claim that these are the best of times. The problem from the CE perspective is that, sooner or later, the troubles affecting

most other industries in the United States will pull ours down as well.

What might be an indication that this is already happening comes from China. China issued a record number of patents in 2009: more than 580,000, a 41% increase from a year earlier. Meanwhile, a September 2010 report from the United Nations' World Intellectual Property Organization announced that patent filing in the United States fell by 11.7% between 2008 and 2009. Indeed, the drop in the United States—as in most developed nations—can be attributed to the global economic downturn and will likely rise when the economy recovers.

But that's what makes China's growth so much more maddening: While the United States dips, other countries are gearing up to take our place as the number one innovator in the world.

Although the CE industry didn't create the nation's current economic difficulties, we do have a role in

	2007	2008	2009	2010	2011e	2012p
In-Home Technologies	US\$ 79,752	85,607	79,450	84,267	89,928	92,455
TV Sets and Displays	US\$ 24,661	25,827	22,407	20,120	18,219	16,960
Video Components	US\$ 4,911	6,846	7,505	6,207	6,297	6,454
Audio Separates/Systems	US\$ 5,003	4,483	4,223	4,502	4,656	4,892
Home Information Technologies and Security	US\$ 42,933	46,400	43,355	51,822	59,580	63,190
Communications	US\$ 2,244	2,051	1,961	1,616	1,176	959
In-Vehicle Technologies	US\$ 12,257	12,802	8,167	9,052	9,309	10,149
Entertainment	US\$ 9,501	8,711	6,004	7,216	7,608	8,586
Information and Security	US\$ 2,756	4,091	2,163	1,836	1,701	1,563
Anywhere Technologies	US\$ 57,900	63,546	62,935	67,311	71,196	74,185
Digital Imaging	US\$ 9,197	9,416	8,746	8,611	8,038	7,551
Portable Entertainment	US\$ 7,349	7,325	6,716	8,211	7,906	7,304
Electronic Gaming	US\$ 19,738	23,558	22,752	23,827	24,195	24,934
Portable Communication	US\$ 21,616	23,247	24,721	26,662	31,057	34,396
CE Enhancements	US\$ 19,201	19,556	19,264	19,804	20,061	20,209
Accessories	US\$ 14,299	14,777	14,540	14,453	14,902	15,425
Blank Media	US\$ 4,902	4,779	4,724	5,351	5,159	4,784
Total	US\$ 169,110	181,511	169,816	180,433	190,494	196,998
Industry Growth		7.3%	-6.4%	6.3%	5.6%	3.4%

e: Estimate; p: Projected

FIGURE 2. Sales revenues breakdown by product category; growth is apparent in most categories.

reversing them by advocating the policies that not only help our own industry but every U.S. industry. In 2009, CEA launched Innovation Movement to bring together an engaged community not just of industry professionals and entrepreneurs but of all citizens who believe innovation is critical to American global leadership and economic growth. This grassroots campaign mobilizes Americans in support of public policies—such as international trade, skilled immigration, deficit reduction, and broadband deployment—that encourage and advance American business and shore up our economy for future generations.

Today, CEA's Innovation Movement has more than 133,000 members, with 21,000 fans on Facebook alone. This summer, we developed the Declaration of Innovation to set forth the principles and policies that we believe are vital to the continued prosperity of the United States (see "The Declaration of Innovation").

YET QUESTIONS REMAIN: WHY INNOVATION? WHY THESE PARTICULAR POLICIES?

To begin answering these questions, I need to go back to 2008 when I visited China to attend its equivalent of CEA's International CES. As I write in my book, *The Comeback: How Innovation Will Restore the American Dream*, I was at a formal banquet in Qingdao, sitting next to a top communist official who, during the course of the evening, provided me what I thought at the time was an amusing anecdote.

As he was the top Chinese official and I was the top American, we were seated in the center of the VIP table with interpreters seated behind us. The speeches had ended, the entertainers had not yet taken the stage, and a moment for conversation had begun. And that's when it happened. He turned to me and pointed his thumb up in the air. "China going up," he said in English. I nodded. He then turned his thumb down and moved his hand toward the floor. "U.S. going down," he declared.

The Declaration of Innovation

We, the people of the United States of America, hold these truths to be self-evident—that great innovators drive America's unsurpassed economic success; that innovation creates jobs, markets, and industries where none existed before; and that innovation moves us forward as a nation, pushing us to succeed and strive for a better tomorrow.

Staying true to our legacy and our obligation to the life, liberty, and happiness of future Americans, we hereby declare that innovation is and should be a key national priority and strategy for this nation.

We urge policies that promote innovation.

We believe American innovators should be able to buy and sell their products around the world.

We believe that more spectrum must be available for wireless broadband.

We believe in welcoming the best and brightest minds to the United States.

We believe in cutting the federal deficit.

Americans create valuable inventions, content, and ideas. To continue this storied tradition—and solidify prospects for future generations—we must return innovation to its rightful place at the center of America's economic policy.

Today, I pledge my commitment to innovation, and my support for the policies that ensure innovation remains the strategic advantage of the United States.

—Consumer Electronics Association


Over the coming weeks, my anger over this Chinese insult transformed into a horrible conclusion. It is not that China was going up—that is a fact. Rather, it is the corollary fact: America is going down. The fact of this decline is unmistakable. It stems from our choking debt and is exacerbated by government actions making

phone, not because the owners enjoy talking on a cell phone but because they need it.

Even economists have only in the last 50 or so years appreciated the complete importance innovation has on the economic growth of a nation. In 1957, American economist Robert Solow defined a breakthrough analytical model of the U.S. economy that attributed more than 80% of growth in economic output per worker to technical progress. Of course, what Solow had found was what we today call innovation—the ability to do more with less.

This is the primary reason why the United States must remain the most innovative nation on earth: because innovation is the fuel that powers economic growth. Most importantly, only innovation produces the type of growth that increases our national standard of living. Unfortunately, this fundamental economic truth is not well understood by many of our citizens, including our politicians.

This might help explain why our unemployment remains above 9%. In fact, nothing that the government has done since the start of the downturn has improved unemployment. And this is where innovation is critical to


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the situation worse. The subprime mortgage debacle of 2008 was our clarion call. Housing mortgages don't have much to do with innovation. But the story from beginning to end, when it ends, has revealed that our government is wildly ill suited to manage our economy.

So to the question: Why innovation? Innovation is progress. Innovation is growth. Innovation is the engine of the free market. Above all, innovation is necessary. Ninety percent of the U.S. households own a cell

The Job-Creating Power of Start-Ups

Many of the great job creators of the past 25 years are companies that were barely visible in 1980 or even nonexistent: Target, Home Depot, Starbucks, and Amazon in the retail field; Apple, Intel, Microsoft, Dell, Google, Oracle, and Cisco Systems in information technology; and Genentech, Amgen, Stryker, and Medtronic in medical technology. All of them were founded by entrepreneurs and are run by innovative leaders. Their ingenuity created the jobs boom in those years and enabled them to dominate global markets for their products.

—Harvard Business School
Prof. Bill George
New York Times
1 December 2009

our national prosperity. It's almost a cliché these days to argue that small businesses are more responsible for driving job creation compared with larger businesses, and this is indisputably true.

According to the U.S. Small Business Administration (SBA), small businesses account for a full 50% of total U.S. employment. Moreover, they account for more than two thirds of net new job creation. I know this firsthand: 80% of CEA members are small businesses, and the International CES similarly counts small businesses as most of its exhibitors. It should go without saying that our industry breeds entrepreneurs. Yet company size is not the full story of job creation.

A 2010 study by the National Bureau of Economic Research concluded that only certain types of small businesses are the primary job creators. "Our findings highlight the important role of business start-ups and young businesses in U.S. job creation," the report concluded. "Business start-ups contribute substantially to both gross and net job creation."

Similarly, another 2010 study from the Kauffman Foundation "shows that

without start-ups, there would be no net job growth in the U.S. economy. This fact is true on an average but also is true for all but seven years for which the United States has data, going back to 1977."

These start-ups are built by entrepreneurs who have a better idea, the courage to take calculated risks, the ability to build a great team, and the leadership to build a great company. Entrepreneurs, even those who may fail, even many times, are a rare breed and a national treasure. For our economic future, our national policies must encourage and even celebrate entrepreneurship and innovation (see "The Job-Creating Power of Start-Ups").

To sustain and even enhance U.S. innovation, there are several essential and fundamental actions that I believe need to be taken. Although I have proposed a larger list of essential policies in CEA's book, *The Comeback: How Innovation Will Restore the American Dream*; and for the Innovation Movement and the Declaration of Innovation in particular, we have distilled these policies into four key areas.

KEY 1: WE BELIEVE AMERICAN INNOVATORS SHOULD BE ABLE TO BUY AND SELL THEIR PRODUCTS AROUND THE WORLD

Free trade is the conduit through which the world's citizens are able to improve their standard of living. Free trade lowers the costs of goods for everyone and opens markets where none existed before. In today's increasingly connected world, there is no justifiable reason why a consumer can't get a product from anywhere in the world with the click of a mouse.

As it relates to innovation, free trade vastly expands the market opportunities for U.S. tech companies, adding to economic growth and jobs. At home, Americans get lower-cost consumer technologies that enable them to innovate and create new businesses, Web sites, and content. When the cost of doing business is lower, the cost of starting a business is lower.

According to the Commerce Department's Bureau of Economic

Analysis, royalty and licensing fees paid to America's innovators from overseas reached US\$100 billion in 2010. Between 2003 and 2008, exports in other intellectual property-intensive industries nearly doubled over the same period. Income from exports of information technology-related services, such as research and development and computer and database services, rose from US\$17.7 billion to below US\$30 billion.

Despite this, the United States has not passed a free-trade agreement (FTA) in six years. Three pending FTAs with Colombia, Panama, and South Korea have been stalled in Congress since the Bush administration. While President Obama has indicated—multiple times—his desire to see these agreements pass, they remain bogged down in the gridlock that is Washington, D.C.

The Innovation Movement remains committed to ensuring that Congress moves forward on free trade. In particular, we have identified several

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policies that support international trade and a vibrant export economy:

- ▼ passing the Colombia, Panama, and South Korean trade agreements
- ▼ reauthorizing fast track authority (president's authority to negotiate trade agreements, present to Congress as a simple up or down vote)
- ▼ encourage and enter worldwide trade negotiations and agreements
- ▼ fighting against the buy American provisions because they hurt U.S. trade.

KEY 2: WE BELIEVE THAT MORE SPECTRUM MUST BE AVAILABLE FOR WIRELESS BROADBAND

At the Innovation Movement Web site we keep a "Spectrum Crunch

Clock” that tracks the lost opportunity costs to the U.S. economy and consumers with every minute we delay responsibly managing our nation’s spectrum resources. The Spectrum Crunch Clock estimates that we have been losing US\$14,444 per minute since the clock started ticking on 16 March 2010, when the U.S. Federal Communications Commission (FCC) introduced the National Broadband Plan.

Although wireless providers have spent more than US\$100 billion over the last five years to upgrade their networks, they need more access to spectrum to continue growing and innovating because demand is only going to increase. But there simply isn’t enough wireless broadband to go around.

What’s required is for the Congress to allow voluntary incentive auctions, where interested broadcasters could get paid for returning their spectrum. This could generate approximately US\$33 billion for the U.S. Treasury and allow the spectrum to be used for wireless broadband and other services.

But the broadcasters have resisted giving up their spectrum—which was granted to them by the government back in the 1950s—and Congress, typically, has been slow to act. Meanwhile, the rest of the world isn’t waiting on American leadership in this matter. Japan has identified 400 MHz of new spectrum for auction, Germany 350, the United Kingdom 355, with France, Italy, Canada, and Spain each allocating about 250 MHz. These countries have concluded that fueling wireless broadband will help drive their economy, and they’re right.

To remain a leader in the global economy, our broadband networks must be ubiquitous. To the end, the Innovation Movement has identified these policies to get us where we need to be.

▼ Congressional action is needed to authorize the FCC to put more spectrum into the marketplace and would spur job creation and investment while positioning the

United States to be the leader in the next generation of wireless technologies.

▼ Spectrum needs to be redeployed in wireless broadband to continue to be a world leader in tablets and smartphone applications, innovations of today and tomorrow. Voluntary spectrum incentive auctions will be a win-win for broadcasters, consumers, and wireless broadband and for cutting the deficit.



The U.S. Citizenship and Immigration Services has eased some of the onerous regulations that keep highly educated immigrants from starting businesses in the United States.

KEY 3: WE BELIEVE IN WELCOMING THE BEST AND BRIGHTEST MINDS TO THE UNITED STATES

The wealth that immigrant entrepreneurs bring to our country cannot be overstated. In fact, immigrants have founded some of our most prosperous, innovative companies, such as Yahoo!, Google, Intel, and eBay. This leads to the obvious question: Where would America be without these foreign-born innovators? What would America’s economy even look like? It’s a scary thought when you consider the “what-ifs.” What if the United States had denied entry to the family of Sergey Brin because they were from the Soviet Union—an avowed enemy of the United States in the late 1970s? Well, the Russians might have invented Google first. The simple fact is that immigrants are an instrumental part of American innovation and economic growth.

As the 2009 Kauffman Institute study found, a quarter of U.S. science and technology companies founded from 1995 to 2005 had a foreign-born chief executive or lead

technologist. In 2005, these companies generated US\$52 billion in revenue and employed 450,000 employees. A 2008 report from Intuit reported that immigrant men start businesses at a rate that is 71% higher than native-born men, while immigrant women start businesses at a rate 57% higher than their native-born counterparts.

But an immigrant’s ability to add his or her ingenuity to the U.S. economy—creating wealth and jobs—rests on two important factors: 1) Do we let him or her in? and 2) Do we let him or her stay here? The Kauffman study reports that:

[F]ar more skilled workers are waiting for U.S. visas than can be admitted under current law. Only around 120,000 visas are available for skilled immigrants in the key employment categories. These numbers are particularly troubling when you consider that no more than 7% of the visas may be allocated to immigrants from any one country. So, immigrants from countries with large populations like India and China have the same number of visas available (8,400) as those from Iceland and Mongolia. We estimate that more than one third of the million workers in line for permanent resident visas are from India.

Fortunately, the U.S. Citizenship and Immigration Services has eased some of the onerous regulations that keep highly educated immigrants from starting businesses in the United States. But more needs to be done. For example, we accept thousands of foreign students into our most prestigious universities every year, only to kick them out of the country upon graduation. We should reform our visa policy so that earning a higher degree in the United States puts one on the fast track for visa approval.

Other policies the Innovation Movement favors include:

▼ reform the H1B visa so that foreign graduates of U.S. schools become



CEA

American employees and add to the wealth of this nation

- ▼ allow a quick path to citizenship for entrepreneurs
- ▼ create criteria and a process for granting citizenship to qualified immigrants.

KEY 4: WE BELIEVE IN CUTTING THE FEDERAL DEFICIT

Finally, no factor threatens the national economy—and innovation—more than the ballooning federal deficit. The massive federal debt destroys future private sector investment because the only ways to pay off this staggering level of debt are to 1) increase taxes and 2) print more money, which will drastically lower the future value of the dollar. Both actions lower the returns that private sector investors can earn. Moreover, the riskier an investment, the greater the return that investors need to compensate for the risk, and innovation investments are invariably among the most risky, so they will be proportionately ravaged, crushing economic growth and job creation.

But the devastating results for innovation from such massive government spending go beyond higher taxes and a debased dollar. First, out-of-control debt directly increases the overall economic uncertainty among private sector investors, significantly

complicating their investment in decision making and further reducing investment. Second, as we are seeing in the present economic crisis, our government typically responds to an economic turmoil by significantly increasing and expanding regulation of



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business, which increases costs, lowers investment returns, and further increases uncertainty.

In fact, a September 2010 report issued by the SBA Office of Advocacy found that rules and restrictions imposed by the federal government now cost Americans US\$1.75 trillion annually, up 60% in less than five years. The report also says that the cost per employee of these regulations is higher for small firms than for large firms.

Uncertainty causes all private investment to wither, and innovation investments wither the most. For example, venture capital (VC) firms, which have financed such successful start-ups as Intel, Microsoft, Google, and eBay, typ-

ically have an investment horizon of five to seven years. Unless VCs have a reasonable certainty about tax and regulatory policies over this horizon, their risks will skyrocket, and their innovation investments will shrink.

As a final note about our desperate financial situation, consider that as annual deficits build up our mountain of debt, the annual interest on that debt will account for an ever greater share of annual spending, leaving less for good and essential programs.

By no means will enactment of these policies lead to an immediate recovery of the U.S. economy. But without them, the United States surely will continue to decline. As America's innovators, we have an obligation to do whatever we can to keep this from happening. I urge you to join the Innovation Movement and become a part of a great American comeback. In ten years I want to return to China, find that official, and extend my thumb, pointing upward.

ABOUT THE AUTHOR

Gary Shapiro received his law degree from Georgetown University Law Center and is a Phi Beta Kappa graduate with a double major in economics and psychology from Binghamton University. He is the president and CEO of CEA, the U.S. trade association representing more than 2,000 consumer electronics companies and owning and producing the annual tradeshow, the International CES. He has been recognized by the U.S. Environmental Protection Agency as a mastermind for his initiative in helping to create the Industry Cooperative for Ozone Layer Protection. He leads a staff of 140 employees and thousands of industry volunteers and has testified before Congress on technology and business issues more than 20 times. *Washington Life* magazine has named him one of the 100 most influential people in Washington, D.C. He authored the 2011 book *The Comeback: How Innovation Will Restore the American Dream* (Beaufort). 