Mass Produced Electric Cars? Sooner Than You Think

WASHINGTON – The still unresolved issue that will determine if and when there will be real mass demand for Electric Vehicles, EVs, is how to design and manufacture cheaper, lighter batteries for EVs with a higher energy reservoir, and therefore capable of traveling longer distances with one electric charge.

Getting there

The optimists tell us that we are getting there. They cite significant technological innovations and dramatic cost reductions already achieved in the past few years. All true. Batteries are cheaper. EVs now can travel farther. And the optimists also tell us that new collaborative efforts now underway may help expedite additional progress in battery design and effectiveness.

Cheaper batteries, coming soon

Here is a good example. "*Cheaper, more powerful electric car batteries are on the horizon*." This headline appeared on ScienceDaily, 9 August 2016. The story is about a new joint effort linking the U.S. Department of Energy, several U.S. academic institutions and the private sector, under the leadership of a Binghamton University expert.

"The White House –Science Daily wrote– *recently announced the creation of the Battery500 Consortium, a multidisciplinary group led by the U.S. Department of Energy (DOE), Pacific Northwest National Laboratory (PNNL) working to reduce the cost of vehicle battery technologies. The Battery500 Consortium will receive an award of up to $10 million per year for five years to drive progress on DOE's goal of reducing the cost of vehicle battery technologies."*

“[Assuming success, this effort] will result in a significantly smaller, lighter weight, less expensive battery pack (below $100/kWh) and more affordable electric vehicles.

M. Stanley Whittingham, distinguished professor of chemistry at Binghamton University, will lead his Energy Storage team in the charge.”

“We hope to extract as much energy as possible while, at the same time, producing a battery that is smaller and cheaper to produce,” said Whittingham. “This consortium includes some of the brightest minds in the field, and I look forward to working with them to create lithium batteries that will power future electric vehicles more affordably.”

According to the Science Daily story, other Battery500 Consortium members include:

- *Pacific Northwest National Laboratory*
- *Brookhaven National Laboratory*
- *Idaho National Laboratory*
- *SLAC National Accelerator Laboratory*
- *Stanford University*
- *University of California, San Diego*
- *University of Texas at Austin*
- *University of Washington*
- *IBM (advisory board member)*
- *Tesla Motors, Inc. (advisory board member)*

Breakthrough?

Well, is this an indication that we are on the verge of a major breakthrough when it comes to the most critical component of future generation EVs? Who knows, really.

Still, if I were the CEO of a major oil company, I would feel very nervous.

Never mind OPEC and its mixed signals regarding its willingness and ability to freeze/cut production in order to stabilize global oil prices. Never mind the ongoing tensions between political rivals Saudi Arabia and Iran and their potential impact on oil markets.

Oil will become obsolete

The real scary thought is that oil may soon become obsolete. Yes, you got it right: *"Oil may soon become obsolete".*

Of course this will not happen suddenly. And of course there will still be a significant need for many oil derived products other than gasoline for automobiles. (Think jet fuel, diesel for heavy trucks, oil for plastics and other petrochemical products, and a lot more).

Still, the fact is that on a global scale crude is used mostly to produce the gigantic rivers of oil-derived gasoline that end up in the tanks of hundreds of millions of cars powered by internal combustion engines. Tanks that need to be refilled very often with more and more gasoline.

End of the conventional car

If and when cheaper EVs powered by cost-effective new generation batteries hit the road, there will be a fairly rapid revolution. This will be the end of the conventional car powered by an internal combustion engine.

Indeed, an electric charge is much cheaper than filling your tank with gasoline. Much cheaper batteries, assuming some companies will manage to manufacture them relatively soon, will lower the price of future electric vehicles, while increasing the distance EVs can cover with one charge.

As soon as this happens, there will be a consumers-led revolution. Millions of drivers across the world will quickly switch to EVs because they will be finally affordable, dependable, and much cheaper to operate, not to mention far cleaner than their gasoline powered counterparts. (By the way: not entirely clean. EVs run on electricity, a zero emission fuel. However, a significant percentage of electricity in the U.S. and elsewhere is produced by burning coal and natural gas. Which is to say that if you consider the source of their fuel, although emissions free, EVs are still not entirely "clean").

How soon?

That said, the big, open question for any oil executive is: *"How much time do we have left before the whole oil sector will collapse, due to lack of demand"?*

It is very clear that this revolutionary transformation brought about by mass-produced EVs will happen. But nobody knows when: 5 years? 10 Years? 15 Years?

And here is the big problem for the oil industry. In order to properly run their businesses, oil executives must plan ahead. And these plans entail major capital investments needed now in order to reap significant gains to be realized several years down the road in terms of new oil production coming on line.

Indeed, for oil companies to stay profitable, mature wells close to exhaustion need to be replaced by fresh production. And this means investing now, sometimes on a massive scale, in order to secure continuity of future oil production. This is how the industry works. Except that now this traditional approach is no longer a sure bet.

Given developments in EV battery technologies, today oil executives know that this cycle of investments-exploitation-new investments-future exploitation will no longer work indefinitely.

The end of oil companies as giant players

If and when EVs will become dominant because of technological and cost breakthroughs in batteries technology, this will signal the beginning of the end for major oil companies.

In the not so distant future, many of them will run the risk of being caught with new expensive projects half completed that all of a sudden are no longer economically viable on account of collapsing demand for their product –oil– once coveted, and now out of fashion.

Beyond these contingencies, because of EVs almost all oil companies will have to cut production, concentrating on the cheapest crude, in order to survive in a new energy era characterized by drastically diminished demand for oil and oil products. The weakest players will not be able to make it. They will go under, or they will be bought by bigger companies.

Oil will still be needed

Having said all this, will EVs amount to a final catastrophe for the oil sector? Not entirely. Let's keep all this in perspective. Even assuming state of the art, cost-effective EVs quickly replacing an enormous global fleet of gasoline powered vehicles, there will still be demand for oil.

Heavy trucks and ships will continue to run on oil derived diesel fuel for many, many years. Likewise, thousands upon thousands of civilian and military airplanes will still rely on jet fuel made from crude oil. Petrochemical and plastics industries across the globe will continue to need oil derived products.

All this is true. However, assuming a fairly rapid switch to EVs, the global demand for oil, now driven largely by demand for oil derived gasoline, will collapse. All of a sudden, the global oil industry will face gigantic over capacity: too much oil and too little demand. Only the ultra lean, low-cost operators with a solid financial base will survive.

Good bye Exxon?

Hard to think of a world in which Exxon Mobil will be a mid-sized company confined to producing oil for jet fuel and diesel trucks only, since millions of cars will run on electricity, and no longer on gasoline. But we are getting there. And this may happen sooner than we think. Call it the next "oil shock".

Regulations Kill Enterprise

WASHINGTON – Jim Tankersley reports in The Washington Post, (May 23, 2016), that "*The recovery from the Great Recession has seen a nationwide slowdown in the creation of new businesses, or start-ups. What growth has occurred has been largely confined to a handful of large and innovative areas, including Silicon Valley in California, New York City and parts of Texas, according to a new analysis of Census Bureau data by the Economic Innovation Group, a bipartisan research and advocacy organization.*"

Death of the U.S. small company

Holman W. Jenkins writes in The Wall Street Journal (*Trump for Blow-Upper in Chief?*, May 21-22, 2016) that the Kauffman Foundation noted that there is a marked "*decline in small business entrepreneurship*" in America. Jenkins also cites a Brookings Institution report pointing out that business closures now exceed business starts in the U.S.

Well, what could be the reasons behind this rather ominous trend in what used to be the land of private enterprise? May be the cause of all this is in another fact cited by Jenkins in his WSJ piece. According to the Competitive Enterprise Institute, last year Congress passed 114 laws. But it issued 3,410 new regulations. These amounted to 80,260 pages in the Federal Registry, close to a historic record.

Regulations suffocate small enterprises

So, here is my simple theory. Whatever its intentions, the Obama administration in its effort to regulate and restrict almost every economic or commercial activity is slowly strangling U.S. enterprises, especially small and medium-sized companies that simply lack the resources to ensure compliance with this myriad of confusing federal rules. Please, do keep in mind that these companies are the true engines of the U.S. economy. These are the innovators and the jobs creators.

Killing capitalism

So, here is the thing. You do not need a proletarian or a social-democratic (Bernie Sanders-style) revolution to kill capitalism. A death by a thousands cuts inflicted by federal regulators will do just fine. It seems that government bureaucrats are quite capable of destroying capitalism on their own.

And so the most successful economic system ever devised in human history will wither and die not because of a popular uprising staged by the angry masses, but because of the suffocation caused by an avalanche of regulations that make it almost impossible for small businesses to stay viable and grow.

Public Assistance Is A Curse

WASHINGTON – *"Continued dependence upon relief induces a spiritual and moral disintegration fundamentally destructive to the national fiber. To dole out relief in this way is to administer a narcotic, a subtle destroyer of the human spirit".*

Aid is bad for you

This is a pretty accurate description of the long-term (unintended, we hope) consequences of well intentioned, government-funded economic welfare programs. Indeed, if all you do is to give aid for free, and with no time limit to needy people, you end up making them perpetual dependents.

Like it or not, by allowing disadvantaged people to get by without any personal effort, you kill their motivation to do their best to help themselves. Yes, if this is the substance of public assistance programs, relief becomes indeed a *"narcotic, a subtle destroyer of the human spirit".*

Who said it?

Well, agree or disagree, it is interesting to find out who said this. An easy answer would be Ronald Reagan, the somewhat romantic champion of unfettered free market capitalism, the high priest of celebrated American values centered on self-reliance, and indomitable *"do-it-yourself"* spirit.

According to Reagan, Americans do not want aid. No, the want freedom; so that they can take care of themselves, relying on their own efforts.

FDR warning

But no. It was not Ronald Reagan who said this. Actually, It was President Franklin Delano Roosevelt. And he said this in 1935, when millions of impoverished Americans were still dealing with the devastating consequences of the Great Depression.

What? FDR, the Father of the New Deal, and of the beginnings of the U.S. Welfare State said that relief was a *“narcotic*“?

Yes, he did. Which is to say that in a more enlightened era, even those who created new public assistance programs in order to deal with emergency situations, understood that those programs should be limited in size and scope.

But already long ago we forgot FDR’s warnings. Now nowadays anybody aspiring to elected office will promise more and larger programs, for ever larger constituencies. And yes, whatever may be said officially, all voters are led to believe that the benefits will never stop. In fact, now the recipients assert that they are entitled to receiving them. Welfare and relief somehow have become new civil rights.

Bad policies inspired by political goals

And so politicians administer free benefits/narcotics, even though many of them know full well that these benefits are *“destroyers of the human spirit”.* In fact, this may be the main reason why they spread them around so lavishly. Giving away all sorts of free goodies may help them at election time. (*“If you re-elect me, there will be more programs, just for you”*).

However, because of these ill-advised policies the fabric of the American society will be progressively eroded. Large armies of people relying on some form of welfare cannot be expected to be productive citizens eager to face challenges.

More of the same

Yes, after decades of experimentation with ill-advised welfare programs which induce dependence, by now we should know that ***"continued dependence upon relief induces a spiritual and moral disintegration fundamentally destructive to the national fiber. To dole out relief in this way is to administer a narcotic, a subtle destroyer of the human spirit".*** Yes, all politicians should know this. And yet they continue promoting these policies and remedies.

I guess trying to get elected is a much more important goal than promoting the public good.

Unhappy Americans Look for Culprits

WASHINGTON – The most visible impact of *"The Great Stagnation"* , (the title of Tyler Cowen's book provides a good definition for this uninspiring economic era), is that many Western societies, including America, have lost whatever confidence they had in the ability of elected representatives to deliver steady economic growth, and therefore more prosperity. Hence a peculiar mix of revulsion and cynicism towards the *"political establishment that failed"*, and at the same time completely unrealistic confidence –almost blind faith– in would-be new, non traditional leaders who promise cost-free, total transformation –first and foremost the overnight rebirth of slow-moving economies.

Politicians do not deliver the prosperity they promised

Regarding popular sentiments in the U.S., just look at the stunning outcome of a recent NBC/Wall Street Journal poll. Only 24% of all American polled indicated that the country is moving in the right direction, while 70% believe that we are headed the wrong way.

The problem is that most people, looking for the causes of an anemic economy, now believe that their own personal economic misfortunes are almost entirely attributable to the errors and/or misbehavior of corrupt or incompetent political leaders.

Hence the delusional hope, in many cases absolute certainty, that if we finally *"throw all the rascals out"*, and replace them with genuine fresh talent, all will be well. Sadly, here we have a combination of bad diagnosis and delusional faith in an impossible cure.

Lack of innovation, constrained opportunities

As Tyler Cowen explains in his book referenced above, the developed world is going through a bad patch of slow growth due lack of innovation. This means that there are very few new economic opportunities created by new technologies.

In the meantime, most Western societies, the U.S. included, are suffering because of the negative consequences of globalization. With hundreds of millions of Asians willing to work for far less money, millions of steady manufacturing and services jobs held by so many Americans migrated to Asia. No chance that these jobs will be coming back. I mean not a chance. Which is to say that anybody who promises to "bring our jobs back" is dreaming, or worse.

Who is guilty of all this?

Anyway, no matter what the real facts are, this is what millions of Americans believe. ***Number one:*** most U.S. voters have lost confidence in the political and policy-making process as we know it, mostly because "establishment politicians" are unable to deliver improved economic standards. ***Number two:*** large numbers of voters – large numbers; but not majorities– are willing to take a chance on untested would-be leaders (businessman Donald Trump on the right, and Senator Bernie Sanders on the left) because they are perceived to be "good outsiders", not tainted by the corrupt Washington establishment; even though one should note that, just like the old establishment politicians, both Trump and Sanders also promise great things at almost no cost. In fact, these brand new would-be Chief Executives promise much bigger and better things.

So, here we have a really bad combination of disgust about what exists and childish fantasies about what the next happy chapter is going to be. It is clear that there would be no *number two* (escapist fantasies about great, flawless leaders), without *number one* (excessive pessimism about the current political establishment).

Loss of confidence

Number one is serious business. Millions of Americans are now convinced that this country is run by an insiders' game rigged by the special interests who pay for the election of candidates. Once in office, these puppets do exactly as they are told by their paymasters. The accepted story is that the innocent American people are fooled by nice stories told at election time; and then they get just a few crumbs that fell from the table, because all the goodies go to the crooks who paid for the elections of their corrupt representatives.

Disgusted voters

While this is an exaggeration, there is unfortunately enough truth in this generalization, (think of the armies of Washington lobbyists, the "revolving door" always open for retired politicians who want to go into business, the PACs, the convenient tax exemptions), to generate and justify genuine disgust about the whole political process. And this is a real problem.

Let’s not forget that the peaceful self-perpetuation of the American Republic rests on the assumption that most people believe and will continue to believe that we have a legitimate, ethical system that operates in a transparent way, and that this system is run mostly by law-abiding office holders.

People feel cheated

This is not the case anymore. People feel cheated because politicians dis not keep their promises. And there is some truth to this. Indeed, in order to get elected, most candidates for public office routinely promise that they will magically create millions of new jobs. But the honest truth is that elected officials at best can help create a more pro-business environment. No elected officials can create millions of jobs. Looking at our current predicament caused by aggressive Asian competition and lack of innovation, it should be clear that nobody can reverse new historic trends and major global shifts through legislation.

Politicians cannot fix this problem

No U.S. Senator, Governor or President can reverse the rise of Asia, with its hundreds of millions of low-cost workers who get millions of jobs outsourced from the U.S. simply because Asian workers are happy with much lower salaries, and therefore are more cost competitive. By the same token, no U.S. President can prevent automation from killing hundreds of thousands of factory and now services jobs.

Promising the impossible is immoral. And yet all candidate do it, all the time. Voters believed those who in either party made the biggest promises. But now they do not believe them anymore, not because they understand the truth about *“The Great Stagnation”,* an epochal change that cannot be controlled, let alone reversed by elected officials; but because they believe that these politicians are personally responsible for their plight.

The accepted narrative is that the masses suffer because most U.S. politicians are in the pockets of the greedy 1% who want to grab everything. Unfortunately, most Americans do not really understand the true dynamics of globalization.

Rigged game

Most voters no longer believe in the establishment because now they are convinced that America is a rigged insiders' game. According to the simplistic and yet generally accepted narrative, America is still very rich. The problem is that most of the wealth is stolen. Millions of Americans believe that Wall Street and major corporations are making huge gains by willfully sending jobs abroad, while all the cash goes to them, a tiny minority. Meanwhile, corrupt politicians paid by the special interests twist the system so that the greedy few will keep receiving even more, thanks to customized laws and tax provisions that favor the already ultra rich elites.

Throw everybody out

Contemplating this ghastly picture, the disgusted voters are not asking for reforms. No, they decided that the entire establishment needs to be junked. And so, in this most unusual presidential campaign, they turned their attention and hope to outsiders, with blind faith that, once elected, these new leaders will step forward and fix everything, quickly and painlessly.

The fact is that the outsiders, if anything, make even bigger and therefore far more preposterous promises. But millions of voters are willing to believe them, because they appear to be "sincere". Since they are outsiders, they are not tainted by Wall Street money, PACs, Washington lobbyists, and the dirty business of buying and selling votes. So, they must be real saviors.

There are no saviors

Well, they cannot be. And this is has nothing to do with their intentions. It has to do with the limited reach of any public policy. As indicated above, we are going through a bad patch that is only in some measure the result of poorly designed laws and regulations.

Washington cannot make productive innovation happen by legislative or regulatory fiat. Washington can and should promote and support a pro-growth, pro-innovation, pro-business environment. But even assuming that we did this tomorrow, this would be no guarantee of success. Eventual success is about the drive and the ingenuity of smart people who will come up with new technologies, new products and new services. This is a highly desirable outcome; but it cannot be mandated by law.

Aspiring "Political Saviors" cannot and will not deliver prosperity just because they say they will. Unfortunately, this simple common sense message will not be listened to by people yearning for a panacea.

The old guard is out

At this point, the infatuation is on, and the focus is and will stay on those who promise miracle cures. Sadly the traditional political forces are too discredited. Whatever sensible message about establishing a healthy distinction between realistic and unrealistic expectations they may put forward, they will not be believed.

And why? Well, because for decades they have been in the business of making exaggerated promises they knew they could not keep. For a long time they got away with over promising, because the economy was still growing. But now it isn't anymore, and so nobody believes them. Hence the rise of the Saviors.

No More Startups In America

WASHINGTON – President Obama confidently declared to the Nation in his last State of the Union Address that the American economy is back. Under his administration the Great Recession of 2008 was contained, and then 14 million new jobs were created. The economy is growing at a healthy pace.

Not that good

Well, it is not that good. What we have had since 2009 is the worst economic recovery in modern American history. The average rate of growth used to be 3%; now it is 2%. A huge deterioration. And this decline occurred notwithstanding an unprecedented period of high federal spending (hence the debt explosion) and zero interest rates that were supposed to guarantee higher growth. Unemployment is down to 5%. But this is largely because far fewer people are active workers. Millions have dropped out. Labor participation is extremely low.

Add to this millions of people who have part-time jobs only because they cannot find full-time occupation and the picture turns dark. Most of the new jobs created by this economy are in low paying sectors: waiters, janitors, nursing assistants, store clerks.

What we have is a highly indebted, slow-growing American economy that at its best is able to create low paying services jobs. And the trouble is that the President and many others claim that this is good. We are doing fine. No, we are not. With this feeble growth, and this unprecedented level of debt we are well on our way to a slow but inevitable economic decline.

The “Land of Opportunity”

America used to be the “Land of Opportunity”. By this I mean the country in which many wanted to be entrepreneurs because they knew they had a fair chance to succeed. The broader context –laws, regulations, contracts enforcement, patent protection, credit availability, taxation– was generally pro-business.

And then there was a huge continental size market populated by eager consumers. When Americans see something new, or better, or cheaper they will buy it. For all these reasons, many Americans who started new enterprises did well, while some did extraordinarily well.

In that era the “Self-Made Man” became the quintessential American icon. At the same time a symbol of success, and a role model for others aspiring to be business owners.

Old model not working anymore

Well, this old model is not working anymore. Sure, whatever may be happening to the US Stock Market in recent days, the American economy is still growing; certainly more than anemic Europe, or semi-moribund Japan. Employment is growing. The US Dollar is strong. But, compared to its historic average, America has been experiencing very slow growth, while the income of lower middle class and working class Americans has been stagnating for decades.

Low rate of investment

So, what is the problem? The problem is in a bad combination of higher taxes, suffocating regulations and Fed-induced perverse incentives that push large companies to issue more debt, instead of investing to expand operations.

The net result, as David Stockman points out in his Contra Corner, is that net investment in 2014 was only 2.3% of GDP.

This is barely half the 4-5% average that prevailed in the high growth era of the 1950s and 1960s. And right now, Stockman notes, net investment is still below the 2007 levels.

Fewer new businesses created

And this disappointing investment data is confirmed by the declining number of new businesses being formed. The declining number of new enterprises is the red flag, the proverbial canary in the economic mine, indicating that a negative trend is now dominant.

Simply stated, new businesses, the proverbial startups, are the heart and soul of the American economy. Hard to think about future growth and dynamism if their numbers go down. But this is exactly what is happening.

As Daniel Henninger points out in a WSJ piece, the number of one year old businesses grew nicely from 550,000 in 1987 to 650,000 in 2006. But then they started going down.

The recession

Of course we have to factor the Great Recession of 2008 and 2009. Many companies, large and small folded. But the recession, however severe, ended. Since 2009 we have had many years of uninterrupted growth. Still, the number of new startups keeps declining. In his WSJ piece Henninger quotes data from the Kauffman Foundation. In 2012 there were only 400,000 new companies created in America.

And it gets worse. A 2014 Brookings Institution report, also quoted by Henninger, indicates that since 2008 every year there are more companies going out of business than new businesses created. This is a horrible trend.

What happened?

Now, we can debate the causes of all this. I cited bad monetary policies, high taxes, and a positively anti-business regulatory environment. Other talk about the crisis of innovation, (not enough of it to give life to new technologies and new companies that will produce them), "secular stagnation", or whatever.

The pro-growth eco-system is gone

The fact is that, due to multiple factors, the legendary pro-growth American economic "eco-system" is no longer there. The old, easy to understand incentives to start a business and grow it are no longer there. In some sectors the regulatory thicket is almost impenetrable. As a result of all these new obstacles, fewer young people have the interest and the aspiration to become entrepreneurs.

This is a major problem. Whatever may happen in Wall Street in the next few weeks, this entrepreneurship decline is a real, structural impediment to robust future growth. America has become a country in which debt-driven, slow growth is the new model.

Debt driven economy

Of course, until now financing operations through extremely low interest corporate bonds seemed extremely smart. Many companies got essentially free money. Yes, but it looks that this free money was used to fund current operations or stock repurchases. It has not been used to fuel new investments.

The fact that President Obama ignored all this in his State of the Union Address is a bad indication. Of course, he is defending his 7 years economic policy record.

But in so doing he is also telling America that this new era of slow growth, dangerously high levels of debt, under employment, declining entrepreneurship and lack of innovation is actually alright.

And, no, it is not alright. This is a road to economic and societal decline.

A new mandate

Let's hope that a new President will have the mandate to shake up the system. We need aggressive deregulation, lower corporate taxes, and a genuine pro-business policy environment.

We need risk takers who once again feel that it makes sense to start a business in America, without having to worry all the time about inspections and compliance with obscure rules that most people do not even understand.

In Japan Intellectual Property Rights Go To The Employers

WASHINGTON – It is a given that the new "knowledge economy" is driven by clever innovators who are in large part motivated by the hope of making a lot of money once their critical new chip, 3-D printing device, nanotechnology diagnostic system, or whatever else they may be working on is tried, tested, validated and finally patented.

Making money

There is an obvious connection between the incentives to pursue new knowledge and a legally binding intellectual property (IP) protection system that rewards the successful innovator with a patent. The patent says: *"I did this. You cannot copy it. If you want to make this, you have to pay me. Or, if the conditions are right, I may sell my patent to* *you".*

No patents?

Imagine a world in which innovations would not be protected by patents. You come up with something, and a major corporation simply steals the idea and runs with it. You made the effort, and you get nothing.

In such circumstances, what would be the financial incentive to keep experimenting? By the same token, why would venture capital firms bankroll budding innovators if their products could not enjoy patent protection?

In Japan it is different

Well, in Japan, until recently there was a situation that to some extent resembles the above scenario. There is enforceable patent protection in Japan. Except that it benefits the inventor's employer, and not the inventor himself. And do keep in mind that in Japan the appropriate set up is not to be self-employed. Most people, including innovators, are employed by a company.

Professor Nakamura and LED

This is what we get from a The Financial Times profile of Shuji Nakamura, (*Bright idea pioneer shining a light on innovation in Japan*, December 29, 2015). Nakamura is the scientist who created blue LED lighting. He came up with his LED prototypes and subsequent refinements while employed by Nichia Corporation.

Well, given the way things were organized in the 1990s in Japan, Nichia got the credit and Nakamura got essentially nothing. Incredible but true. And apparently this is not an isolated case. In the still prevailing Japanese work place culture, the employee is devoted to his/her employer. Amazingly enough, this means that all what he/she produces while working for a given company becomes the property the company. Sure, there may be some recognition for outstanding contributions. But these are usually tokens.

Nakamura got an education about intellectual property rights, stock options, and more while visiting the US. Still, it took him a long time to appreciate the gigantic level of exploitation considered to be the norm in Japan.

Unprecedented lawsuit

It took him additional time to sue his former employer to get compensation for his LED related inventions. Do keep in mind that this type of litigation was and is almost unheard of in Japan. Employees do not sue their bosses.

With his lawsuit, Nakamura broke all the rules and the unwritten loyalty code that places the interests of the company ahead of anything else.

Nakamura won his court case, even though the amount of the initial award ($ 200 million) was cut down very substantially (to only $ 8 million) after an appeal.

Well, Nakamura made his point. He should have benefited from his extremely important disruptive innovation, even though he produced it while employed by Nichia.

How can this unfair system work?

In all this, what is truly extraordinary is that Japan managed to become a world class high-tech economy while everybody was following these medieval employee loyalty rules which provide almost no financial incentives for creative employees.

But the Nakamura case shows that now there are cracks in the system. Most likely there are many others just like him who resent being robbed of the fruits of their creativity.

Stagnation

For sure there are many reasons behind Japan's prolonged stagnation. But lack of clear financial incentives for innovators must be a factor. After all, just like Nakamura, many Japanese scientists now travel abroad, especially to America. They have a chance to learn about IP protection. They can see that in America making money is the primary driver for people who set up shop trying to come up with the next "Big Thing".

Protecting the status quo

And yet, notwithstanding all this, according to the FT story, the Keidanren, the powerful Japanese business organization, is heavily lobbying the government to keep things pretty much as they are. From their standpoint the old system works just fine.

Well, it may work for them; but not for the innovators, and ultimately not for the country.

Fight Global Warming With Disruptive Innovation – Not Mandates

WASHINGTON – The Paris event on climate change will probably yield nothing really concrete. The fact is that, despite the rhetoric and the contrived "emergency mode", there is a huge disconnect between the desired result to stop and possibly reverse global warming and the tools available for this enormous undertaking.

Impossible targets

Whatever the environmentalists may preach or demand, it is essentially impossible to put the entire world, or even most of it, on a stringent, low-carbon diet. Western politicians who claim that they have a plan are pandering, posturing, or dreaming. We could do this only if we had viable, truly cost-effective technological alternatives. And we do not have them. At least not yet.

Renewable energy? Not quite here yet

Of course, there is renewable energy, the miracle cure. We have solar and wind power, and a lot more. But, so far at least, these are not really cost-effective solutions. Otherwise, they would have been already adopted –on a massive scale.

Sure, today we can install solar power plants in Namibia and Arizona or Morocco, and in other countries where there is a lot of sunshine all year round. As prices for this technology are coming down, this is beginning to make economic sense. But what about Sweden, Siberia, or Belgium? Not much sun there.

Mandates are a bad idea

The worst public policy mistake has been to mandate the adoption of still imperfect renewable energy technologies, so that politicians could show that "we are doing something". This is a bit like governments, circa 1980, mandating the purchase for every public office of the first generation of PCs running on the first Microsoft operating system. This would have created a rent position for PC manufacturers and for Microsoft, therefore diminishing the incentives to innovate and out-innovate each other.

Real innovation, not subsidies

Indeed, if I know that whatever renewable technology I produce today, it will be adopted for political –rather than cost-effectiveness– reasons, why bother to invest more, refine it, perfect it and make it wonderful, as opposed to barely passable? I know that, because of the mandates, utilities are forced to buy my stuff. I make enough money this way. Then why push the envelope?

No real results out of Paris

So, here is the thing. The big Paris gathering may yield something. But it will not be much. And we can be sure that measures promised eventually will not be implemented, at least not in full.

By the same token, it is obvious that poor countries do not have the luxury to tax carbon, or to subsidize solar.

In fact, guess what, the use of coal –by far the most hated carbon-based fuel– is going up, worldwide. Yes, up.

More coal plants in Japan

Look at Japan, for instance. The Japanese have come up with a new generation of cleaner burning, lower emissions, coal-fired plants. They are better, for sure. But they still pollute a lot more than comparable gas-fired plants. Let alone zero emission solar.

Coal everywhere

And yet the Japanese are merrily marching ahead. And they are actively marketing their "clean coal" plants in Indonesia, and elsewhere. India depends heavily on coal. And so does China. Ditto for America, even though coal in the US has been gradually displaced by cheaper (and much cleaner) natural gas.

Add to the mix parts of Africa, beginning with South Africa, the number two economy in the Continent, heavily dependent on coal. So, forget about abolishing coal. Right now, it simply cannot be done.

The revolution

Can this change? Of course it can. But we need some truly disruptive innovation in non carbon energy that does not need political coercion for early adoption.

Look, imagine that tomorrow we get state of the art, truly affordable and super efficient solar power. At the same time, Tesla or some other manufacturer comes up with a really cheap electric car that you can drive for 400 miles without recharging. Assuming all this, we are done.

It would take no more than a few minutes for millions and millions of price conscious consumers, and later on the whole world, to switch to the new technologies.

The end of coal, gas and oil

Millions would install cheap and highly efficient solar panels on their roofs, this way making their own electricity, at home. Then they would dump their cars with gasoline engines and buy an electric vehicle that they can charge at home at almost zero cost. People would make this switch not because they are pious environmentalists, but because they want to save money.

This way, in no time we would have eliminated coal, natural gas (power generation fuels) and oil (transportation fuel) as our key energy sources. Think of that. And we would have achieved the dream of a mostly carbon-free world.

Not enough R&D

This is what we should aim for. Whereas, right now we get little investment in R&D in new energy technologies, and plenty of mandates, regulations, and subsidies for still rudimentary renewable energy solutions.

We should spend real money on “Moon Shot” projects. Bold stuff, out of the box ideas. Of course, most of these efforts will lead to nothing. Lots of money will be burnt on crazy ideas. But this is what happens when you go into uncharted territory.

Fantastic energy future?

Nobody really knows what our main source of energy will be in 50 years. I hope it will be something fantastic, clean and cheap. But if we continue at this pace, chances are that in 50 years we will continue to have debates about “clean coal”, and “lower emission”, gasoline-fired internal combustion engines.

And, if that is so, forget about “solving” global warming.

You Cannot Kick Start Innovation

WASHINGTON – The Emirates News Agency a year ago announced a partnership between the UAE Ministry of Economy and General Electric, the giant US technology multinational. They just signed a Memorandum of Understanding whose objective is “to strengthen the culture of localised innovation, and inspire UAE government employees with deep insights on the innovation and entrepreneurship ecosystem”.

GE will show how to do innovation

The Emirates News Agency explained that “GE will organise leadership speaker sessions to be led by experts at the GE Ecomagination Innovation Center in Masdar City, a regional hub that promotes collaborative research and innovation, for 30 government employees nominated by the Ministry of Economy. The Speaker Series will specifically address the areas of FastWorks, GE’s new initiative to promote the ‘start-up’ culture, which emphasises the disciplines of lean manufacturing and agile software development.”

There was also an announcement about “discussions on entrepreneurship and innovation, the role of education in innovation, and the Industrial Internet, GE’s path-breaking approach to digital industrialisation through the power of big data and advanced analytics. All workshops are designed to promote the integration of innovative thinking into our everyday lives to achieve significant leaps in productivity and efficiency.”

And there was more. A variety of workshops on this and that, demonstrations of how 3D printing works, and so forth.

The UAE government promotes innovation

This agreement with GE supposedly demonstrated how deeply the UAE government is committed to the promotion of innovation in the UAE. As a high level official put it: *“The MoU with GE is a strong testament to the commitment of the Ministry, and indeed the UAE Government, to promote a culture of innovation and entrepreneurship nation-wide. With a focus on sharing best practices, the MoU will help provide deep insights into the newest trends in innovative thought processes, manufacturing, and technologies among the government staff through high-caliber workshops.”*

And the article reported many other lengthy quotes from other high level UAE officials. It is all about “bringing new insights”, “creating a culture of sharing”, enhancing “co-creation”.

Mostly nonsense

Looks promising, doesn’t it? Well, no. In fact, most of this is just nonsense.

Here is the thing. The UAE may have the money and the resources to convince GE, and may be other tech companies, to engage in these kinds of exercises. But they are generally futile.

And here is why.

You can import innovative technologies. But you cannot import a culture that breeds innovation.

No, "an innovation culture" cannot be imported, prescribed, or mandated. Innovation happens because a self-renewing, innovation friendly eco-system has been created, quite often by accident, may be around a research university, or another prominent R&D facility or laboratory.

Generally this happens in dynamic, open economies that encourage entrepreneurship, with a history of applied science and technology and successful commercial applications of new developments.

And this is certainly not the profile of the UAE, not even close.

The building blocks

We know what the essential building blocks for an innovation-driven economy are; at least the big ones that make innovation possible.

For starters, you need a dynamic, free market economy. Then you absolutely need laws and a judicial system that protect private property and intellectual property. Then you need human capital that can be successfully mobilized. And this means that you need some very good science and engineering schools. And top-notch business schools. This type of high quality education system will create a chance that at least some of the graduates will develop a passion for working on new ventures.

Keep in mind that most of these budding would be entrepreneurs will try and fail. In some cases multiple times. But some of them will come up with something. Those who do will need additional support to bring their idea or prototype to the next level.

Hence the critical importance of networks created by top-notch academic institutions, research labs, and other R& D outfits. And, of course, you need developed capital markets, and a robust venture capital industry capable of spotting new comers and willing to risk real money on what look like good prospects that could very well turn out to be duds. And finally you need real and well-regulated stock markets where a successful new venture that plans to go public can receive new funding from willing investors.

Just the minimum

Please note. This is just the beginning. These are just minimum prerequisites. You may have all this and still no consequential innovation is produced. And why so? Because "creating innovation" is still more art than science. Many would-be innovators fail. Some give up. Some don't. Sometimes they pursue something, and then stumble into something else. Not infrequently, there are strange, totally unexpected discoveries.

What about GE in the UAE?

Anyway, what has this to do with GE trying to foster a culture of innovation in the UAE? Plenty. The UAE may be trying to promote good things. But the notion that a Ministry can energize the creative juices of the people by signing an MoU with a large US multinational is mostly a dream, unless it is a mere public relations exercise.

Do the Emirates have an innovation friendly environment?

Sure enough, if indeed the UAE were a modern, market-driven free economy with lots of talented entrepreneurs already working on next generation stuff, then some practical advice delivered through workshops by real pros could make a real difference. But this assumes the existence of a solid foundation that we are not sure is really there.

You cannot copy successful models

Here is the basic point. You simply cannot make things happen if the fundamentals are not already well established. For instance, the whole world knows about Silicon Valley in the U.S. And yet nobody has been able to replicate it. And this is because in Silicon Valley there is a unique culture, peculiar sets of non linear connections and relationships, and cross-pollination that sometimes may take place in counter intuitive ways. There is no formula for this.

There is nothing wrong in the desire to promote innovation. But the best that governments can do is to make sure that they can and will establish the essential preconditions, the "enabling environment" which may lead to the create a business friendly eco-system.

First of all, you must have genuine freedom

And the most essential of all preconditions is genuine, unfettered freedom. Yes personal freedom. What's that got to do with science and technology? Plenty. If it did not, then the old Soviet Union , a country that gave eminent scientists a privileged status within its society, should have been a remarkably successful innovation factory. But this did not happen. And this is because those scientists were all state employees working on (mostly national security) assignments. They did not own their inventions. They could not market them. They could not start private companies. The state owned everything.

Free people have a chance to explore and discover

In Western countries it is different. When educated people with advanced knowledge about science, technology and organizations feel genuinely free, then they are also free to think and experiment, sometimes in new and unorthodox ways. this environment is the precursor to innovation, sometimes very successful innovation.

Make money

Because they are free to think out of the box, some entrepreneurs may very well find or make something really new and become innovators. And part of the incentive is that the would-be innovators know that they will own their ideas, and that the system will allow them to market them without creating artificial obstacles.

Yes, they will be able to make money through the products of their intellect. All this happens because free people who are free to be innovators want to try to be innovators (at least some of them) and hopefully gain from their successes.

They did not get this urge and passion to try new things because they attended a state-sponsored workshop in an oil rich country that at best has a culture of trade, but certainly not of industry.

All Is Well In China?

WASHINGTON – A detailed report prepared by a major Western international economic consultancy pointed out that the doomsday predictions about the Chinese economy about to fall apart are truly exaggerated.

All is well

The analysis maintains that China may be experiencing some problems now, but it is nothing out of the ordinary. The author points out that it is not true that the Chinese economy is dragged down by a bloated public sector. On the contrary, private enterprise is dominant and the long term trend indicates that it will continue to get bigger. (No mention that the state controls all the key strategic sectors, like energy and banking).

Plenty of innovation

It is also untrue that the Chinese cannot innovate. There are plenty of examples of successful innovators. So much so that many western companies want to partner with them.

And it is also not true that rapid industrialization destroyed the environment. China went through phases quite similar to those experienced by other fast growing economies. Yes, there has been some environmental damage. But it is not catastrophic.

Besides, the government is acting fast, and remedial action is underway. (No mention about the lack of publicly available, reliable data on pollution. No mention that until a few years ago the government released false data on air pollution with the clear objective of hiding the extent of toxic emission in large urban areas).

Debt is manageable

It is also untrue that the massive amount of debt created to counter the effects of the 2008 global financial crisis has undermined the foundations of the Chinese economy. Yes, the author concedes, there is a lot of bad debt. However, China has massive cash reserves. The government can intervene and fix all the financial problems.

There are some issues, but no crisis

Anyway, you get the picture. Yes, there are issues. But, hey, every country has got issues. And China’s shortcomings are pretty much the same as those experienced by Taiwan or South Korea at comparable times during their successful economic development.

Alright. So, here we have an optimist. Yes, China’s economy is slowing down. But, in truth, the glass is half full, and not half empty.

Fair enough. When dealing with such a large country it is not easy to get it absolutely right. May be the author is closer to the truth than other, more pessimistic observers.

No mention about the political and institutional context

However, reading this rather upbeat China analysis you are bound to notice something really important. At no point is there is any mention of China as a non democratic one party state in which any political dissent is actively repressed.

No mention about routine media and internet censorship. No mention about a judiciary system that operates according to political instructions. No mention about a massive anti-corruption campaign orchestrated in secrecy, according to secret rules, by the Chinese Communist Party leadership. No mention that this fight against corruption, in a country where corruption is endemic, can be used as a tool to destroy political enemies.

In other words, there is not even the slightest mention about the fact that lack of political freedom, political pluralism and individual freedoms may have an impact on current and future economic performance. This is not just a small detail.

This connection between political freedom, economic freedom and eventually good economic performance is at the core of what we believe to be the underpinnings of modern, self-renewing societies. Free societies allow the free expression of human talent. And this talent is at the source of innovation, and ultimately prosperity.

Democracy and Capitalism

Indeed, we say in the West that political freedom is the oxygen that allows private enterprise to exist, flourish and unleash a virtuous cycle of growth. It is not an accident that we call our system "Democratic Capitalism".

We passionately argue that innovation is predicated upon the freedom to search, to pursue unorthodox paths, to go out of the box, to seek new partners, and so on. Hard to do this consistently in a top-down society in which few dare to go against the rules, written or unwritten as they may be.

Illiberal China will thrive

It would appear that this China expert does not think that political freedoms have any connection whatsoever with the quality and long term sustainability of economic performance. In other words, a one party state can deliver prosperity just as much as a democracy in which basic individual and economic freedoms are constitutionally protected.

Although this point is not openly made in his analysis, implicitly we are to understand that China, a one party state, is doing quite well and –going forward– there are no major issues or minefields its self-appointed leaders will have to deal with. This means that you can have censorship and innovation. Political prisoners and social media. Non transparent judicial proceedings and intellectual property protection. No problem.

It never happened

In the final analysis, we are told that the Chinese economy, while not booming anymore, is basically fine; and all looks good. Which is to say that one party rule can create the necessary conditions for sustained prosperity.

Again, the author does not openly say this. But by implication this is precisely what we get. The numbers (according to him) look good, and so the system must be good. I find this scary.

The fact is that in the modern era we do not have other examples of one party states that produce self-sustaining innovative economies.

But this simple fact does not seem to bother the author. Again, I find this scary.

Thanks To The Central Banks, The Equity Bubble Is Getting Bigger

WASHINGTON – Imagine this. There are lots of chronically sick patients in the hospital. Many of them are deteriorating rapidly. The right therapies cannot be administered because of absurd delays caused by infighting within the Ministry of Health.

Give them morphine

The physicians in charge of the hospital know what is needed to take care of the patients. But they have no resources. The only thing they have got is morphine, lots of it.

Well, since we cannot cure the patients, at least let's alleviate their severe pain. “Morphine for everybody!” orders the Director of the hospital. “But sir, this is no cure”, argues a young doctor. “What do we do when the effect of morphine wears off?”, he asks. “Well, we will give them some more. We have ample supply”, replies the Director.

Quantitative Easing is morphine

This may be a far-fetched analogy, but here it is. The patients are the sick economies in Europe, Japan, the US and now –in a major way– China. The Ministry of Health are the Governments incapable of tackling the structural issues of lack of productive investments, labor market rigidity and high public spending. The hospital Director are the Central Bankers. And the morphine is an ample supply is Quantitative Easing, (QE).

Central Bank left alone to manage the economies

The Western economies are really sick. There is too much leverage, low productivity, too much private debt and out of control public spending. But Governments do essentially nothing about any of this. They are paralyzed by ideological disputes and bogus arguments about austerity and income redistribution. The only institutions that can do “something” are the Central Banks. They have no real “cure” for any of this. But they can provide temporary relief by keeping interest rates close to zero, (here is the morphine, in the form of QE), thereby giving everybody the illusion that the situation, while difficult, is manageable. The patients are still very sick. But (thanks to ample doses of QE-morphine) they feel no pain; and so they are led to believe that they have been cured.

More QE, it is still party time!

This is totally absurd. But this is exactly what is happening. The European Central Bank, after having launched its own QE a while ago, just declared that the Eurozone economies need some more monetary easing. The Central Bank in China just announced some more easy money measures, in a country, mind you, that accumulated a monstrous amount of debt (much of it bad debt) in just a few years.

Watching all this unfold, Wall Street correctly concluded that in this environment where everybody is injecting even more liquidity there is no way that the US Federal Reserve will go against this powerful current and raise interest rates in 2015. With US rates still near zero, it still makes sense to put money in equities, since everything else will give you no financial reward.

Investors got the message. “It is still party time!” And so, Wall Street shot up on Thursday. The Dow Jones added 300 points. There was further growth on Friday. Has this optimism about equities got anything to do with the real economy? Not really.

Perverse incentives

This is yet another Fed-induced rally. (By indirectly signalling that it will not raise rates in 2015, the Fed gave the green light). Needless to say, this is madness. Equity prices in developed economies now are largely disconnected from the fundamentals.

Even worse, thanks to QE governments in highly indebted countries, from Europe to the US, are under no pressure to reform their public finances, because they can keep borrowing at very low interest, this way creating and sustaining the insane delusion that more and more debt is a good way to finance chronic over spending.

Commodities took a dive

In the meantime, though, emerging countries whose commodities fueled the crazy debt-driven Chinese construction investments binge are feeling the pain. As China could not sustain its own truly over sized madness, it stop buying stuff.

Therefore, commodity prices collapsed. As a result, Brazil, Australia, South Africa, Chile, Argentina, Zambia, and many others are suffering, in a major way. They built their budgets with the unwarranted assumption that commodity prices would stay in the stratosphere for ever. Now they have to go back to the drawing board.

In the meantime, their semi-impoverished people have no extra cash to buy new things, while their currencies are worth a lot less. This penury will further depress exports from industrial countries, this way further reinforcing the global downward spiral.

No incentives to engage in serious reforms

So, here is the picture. The global economy is doing poorly, in large part because of minimal growth in the debt-burdened West where Governments still spend money on unaffordable entitlements instead of creating a business friendly environment that will encourage private investments in wealth-creating innovation.

Most emerging markets are in recession or close to it.

But at least in Europe, Japan, the US (and now China) the real extent of the problem is disguised. Developed countries enjoy a drug-induced financial markets buoyancy (QE is morphine) because the Central Banks keep pumping in liquidity, this way allowing the stock market bubbles to continue.

Another big bubble

This is a gimmick. A dangerous gimmick. At some point it will have to stop. I am not sure when. But it cannot go on for ever. I do not even want to think about what will happen when this gigantic bubble will explode.