



**COUNTERMARKETS**  
Trends & Strategies for Maximum Freedom

**Issue 13: March 2018**

**CONTENTS**

**LETTER FROM THE EDITOR**

**TRENDS & FORECASTING**

Tech Trends And Products To Watch From CES 2018

**ENTREPRENEURSHIP**

Build A Live Broadcast Studio For Under One Thousand Dollars

**SELF-SUFFICIENCY**

Urban Agriculture: Getting Started With Indoor Hydroponics

**WEALTH**

How To Avoid Losing Everything In The Dollar Collapse

**BITCOIN & SILVER REPORTS**

**SNEAK PEEK AT NEXT ISSUE**

**DISCLAIMER**

## LETTER FROM THE EDITOR

Dear Member,

Do you believe it's the third month of 2018 already? I want to thank all of you who are participating in the private beta for our [CoinText](#) project. Your feedback has been invaluable in helping us improve the product. Public release is still on schedule for the end of March.

In our *Trends* article this month, Nicholas West breaks down the most noteworthy technology at the CES this year. Find out which mind-blowing innovation affects your liberty and which can empower you.

You may think setting up a professional live-streaming studio is too complicated and too expensive to build. Vin Armani shows you exactly how to do it for less than \$1000 in this month's *Entrepreneurship* article.

Is independence your ultimate goal? Brian Berletic's *Self-Sufficiency* article this month is an actionable guide on how to get started with indoor hydroponics. You can do this!

*The Economist* magazine indicated that 2018 would be the year that national currencies fail and a new "world currency" emerges. I wrote an article for the *Wealth* section this month about how to position yourself to survive a dollar collapse.

Stay free and prosper!

Jeff Paul, Editor



**COUNTERMARKETS**  
Trends & Strategies for Maximum Freedom

## TRENDS & FORECASTING

### *Tech Trends And Products To Watch From CES 2018*



**By Nicholas West**

For more than 50 years, the Consumer Electronics Show (CES) has been the gathering place of the world's leading tech companies as well as the latest tech startups. The massive event comprises over 4,000 exhibiting companies and 2.6 million square feet. It is estimated that a total of 180,000 industry professionals

descend on Las Vegas annually to evaluate the latest trends and developments from the widest range of tech offerings available anywhere in the world.

CES is a trade-only show closed to the public, which makes it a unique place to learn about what's coming versus what is already here. This is the place where trends can be spotted, and specific products are given free rein to explore the boundaries of what is possible, garnering praise or criticism from their closest peers. Clandestine meetings are held, backroom deals can be made, and marketing strategies can be solidified. It is also a place where more than 7,000 international media members are on hand, many of whom are seen as prime influencers within the tech sector.

To further emphasize the global impact that CES can have on the rollout of new tech and products, it is estimated by [The Consumer Technology Association](#) which hosts the event that total worldwide media coverage in print, broadcast and online is close to *70 billion impressions* in just the month of January when it is held. This is clearly the place where the pulse of future tech can be felt.

While the event is often based around the latest scheduled releases from many of the world's household names, as well as a smattering of concept technology that may or may not ever see the light of day, a birds-eye view can present us with some overall themes that we would be wise to pay attention to.

As you'll see, a fair amount of what I have covered thus far in *Counter Markets* is reinforced by what was presented at CES 2018, but a few new points of focus indicate other areas that might emerge sooner rather than later as viable trends worthy of awareness or even investment consideration. I've also highlighted a few other items that seem to push the limits of believability for

what will become a reality; nevertheless, their mere inclusion in an event of this magnitude is worth adding to our trend radar.

**Note:** None of the products or companies highlighted in this article are sponsored content, they've been presented for educational purposes only.



**Roll-up Electronics** – The concept of flexible electronics has been around for some time, with various prototypes appearing here and there over the last few years. However, it appears that the mainstream delivery of several products is imminent.

South Korea's LG Electronics is now seen as one of the very best producers of computer monitors, televisions, and mobile devices. Their 77-inch OLED 4K “wallpaper” smart TV is already thinner than most mobile phones and is currently on the market at a price tag of **\$10K** (an 88-inch prototype was shown off this year). But at CES 2018 they unveiled an even more stunning 65-inch TV that carries similar high quality, but at the press of a button fully rolls up around a core ... like true wallpaper.

This appears to be a huge advancement over their showcase of an 18-inch version just last year. As you can see from the above image, the screen can be stopped at any point to create different sizes and aspect ratios, giving it a new level of versatility.

Current estimates are for a 2019 release date. LG has built a [\\$900 million facility](#) to ramp-up production of a wide variety of flexible electronics, ensuring that this has moved well out of the concept phase into an emerging trend.

Lesser-known company, [Royole Corporation](#), was also on hand to showcase their claim to have the world's thinnest full color flexible display (.01 mm), which you can see in this incredible [video here](#). The company lists the many benefits to ultra-thin displays that can be embedded with the latest flexible sensor technology: “portable, shatter-proof, unbreakable, and low energy,” while also benefiting from “higher performance, shorter production cycle, large-volume production capabilities, and lower costs.”

They already have integrated mobile phone functions into these flexible displays, but the ability to offer a new level of portability could revolutionize all mobile computing – think transparent keyboards, laptops and smartwatches, as well as a mobile phone that you truly can put in your back pocket without even noticing. As the video shows, it can even be applied to glasses which would go a long way toward opening up augmented reality applications and wearable tech that have thus far been hindered by bulky or unsightly external form factors.

**Wearable Tech ... And Batteries To Power It** –As I discussed in [issue 7](#) of *Counter Markets*, Virtual Reality and Augmented Reality are both being heavily invested in and have a massive range of applications. It was no surprise that many different types of wearable tech were prominently displayed at CES 2018, such as new versions of smart watches, smart glasses, fitness trackers

(even a wearable posture tracker), as well as VR gaming applications and hardware products. However, one new product offered some additional insight into the further expansion of [Operator 4.0](#) that I also covered previously – essentially augmenting the industrial worker or field technician with hardware and software integration in order to infuse the best of robotics and artificial intelligence with the best of what humans can offer.

Company, [RealWear](#) showed off an Android-based, head-mounted tablet with wireless and Bluetooth connectivity that also has voice activation to navigate a built-in software menu. The company states that it's the world's first truly hands-free tablet.



As you can see by the list of features below, it is a product that has endless potential to enhance all types of fieldwork that could benefit from real-time assistance, collaboration or training.



#### BOOM ARM

Adjusts six ways to accommodate any head size or eye relief – flips display out of way when not in use.



#### LOUD & CLEAR

Integrated 91 dB speaker and 3.5 mm audio jack for use with hearing protection.



#### PROTECTED

Clips on to hard hats. Works with safety glasses and goggles. Weighs 370 g.



#### CAMERA

16 MP, autofocus and image stabilized for hi-resolution photo capture and real-time video chat.



#### CONNECTED

Wi-Fi + Bluetooth LE. Tether to LTE smart phones, portable hotspots, or plug-in USB dongles.



#### TRACKED

GPS, gyroscopes and digital compass for positioning – detects Bluetooth beacons.



#### RUGGED

IP66 – dust proof & waterproof – 2 meter drop test onto concrete – MIL-SPEC 810G.



#### INTRINSINCALLY SAFE MODEL

HMT-1-Z1 model is for potentially explosive environments in oil & gas, etc. FMC1/D1 – ATEX Zone 1. Available in 2018.



#### WORKS LONG SHIFTS

Rechargeable, swappable full shift battery.



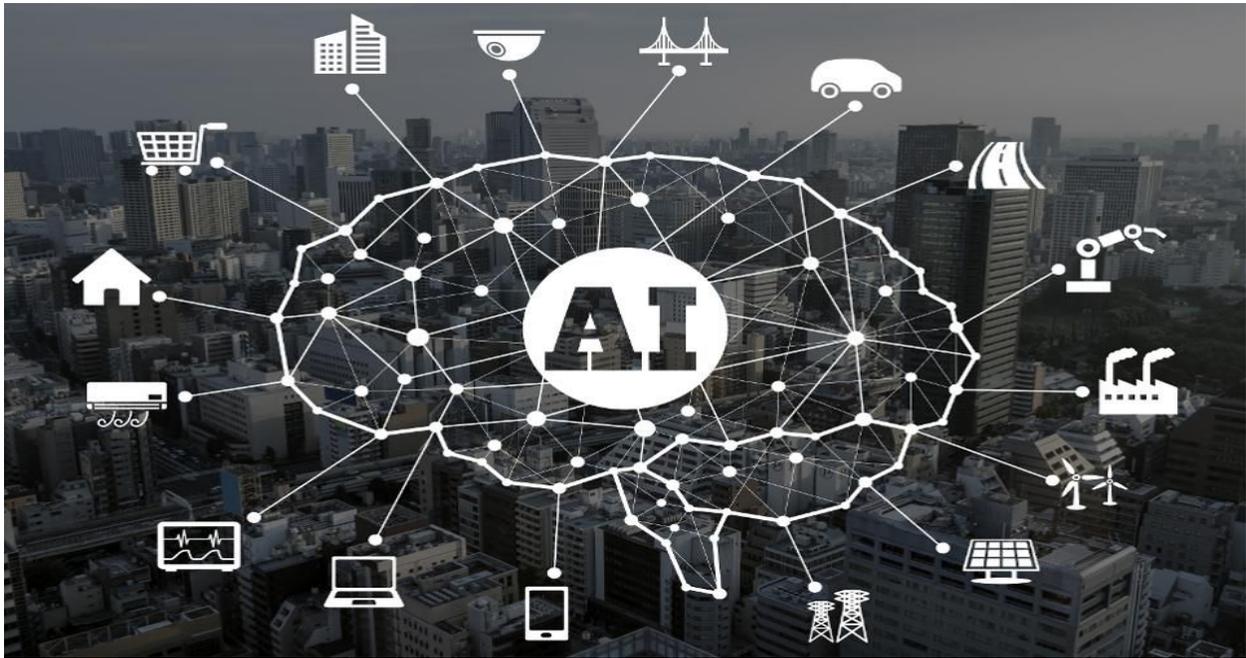
#### POWERFUL

Self-contained Android 6.0 Qualcomm Snapdragon 625 platform with 2 GB RAM/16 GB Flash.

One key item from this list that comes up as a current hurdle to wearable tech is the battery. Thus far, cumbersome battery packs and short battery life have prevented the speed of widespread adoption. A few companies gained a lot of attention at this year's CES for addressing this issue.

One Taiwanese company, [ProLogium](#), showcased its solid-state Lithium ceramic battery (LCB) technology which is seen to be more rugged than liquids or gels, especially for industrial applications and vehicles, while also offering a higher energy output than standard lithium batteries. The flexibility and power would enable battery packs that, for example, could be integrated into a standard belt, shoe insoles, watchbands, and even as a credit card, giving long-lasting power on the go in an unobtrusive variety of packages. Their technology won them a CES 2018 Innovation Award. [GoWearTech](#) also showed off their line of battery belts and straps that offer a new type of flexibility for USB charged devices.

As this hurdle is increasingly cleared I suspect that we will begin seeing the wearable tech sector proliferate even further in the fairly near term.



**A.I. Voice Assistants Integrated into ... Everything** – Artificial intelligence already has hit the mainstream with Cortana and Siri integration into computer operating systems. But the smart home market has really exploded with devices such as Google Home, Amazon [Alexa](#) and Apple Home continually adding new products to their lineup.

Electronics makers have taken note and are now beginning to add A.I. assistant apps with voice control as a default option in their new releases of everything from televisions to headphones (even wireless earbuds), refrigerators, light switches, in vehicles and essentially anything else that is slated for connection to the Internet of Things. There was a marked uptick in the presence of these products at CES 2018 with companies like LG, Sony, JBL, Asus, Harman Kardon (Allure) and Lenovo being among the major companies expressing interest in integrating A.I. voice assistance into an increasing number of their future products.



**Robots, more robots ... and Sex Robots** – Of course as artificial intelligence continues to advance, it will bring new levels of automation to a wider array of very complex systems. All things robotic were indeed on display this year, with a few new offerings that caught more than a few attendees off-guard.

As I have covered extensively for *Counter Markets*, the impact that industrial and service robots will have on the future job market cannot be overstated. Sure enough, LG unveiled several new robots that are specifically designed to replace hotel workers, airport staff, and supermarket assistance. While LG stressed that their new robots are “concepts” only, this is clearly a trend that has been ramping up quickly across the globe. With a mega tech company like LG investing in further innovation, it will be sooner rather than later that we begin to see these robots make their impact felt.

There were also a host of novelty bots on display including pet robots, soccer and ping-pong playing robots, and many other game bots and companion bots.

More controversially, perhaps, the potential social impact of humanoid robots appeared for the first time at CES in the form of a sex robot exhibit. Regular readers will recall that [last month](#) we discussed some of the “conspiracies” surrounding the discussion of this topic and, yet, a new A.I. sex robot appeared at one of the most influential consumer trade shows in the world.

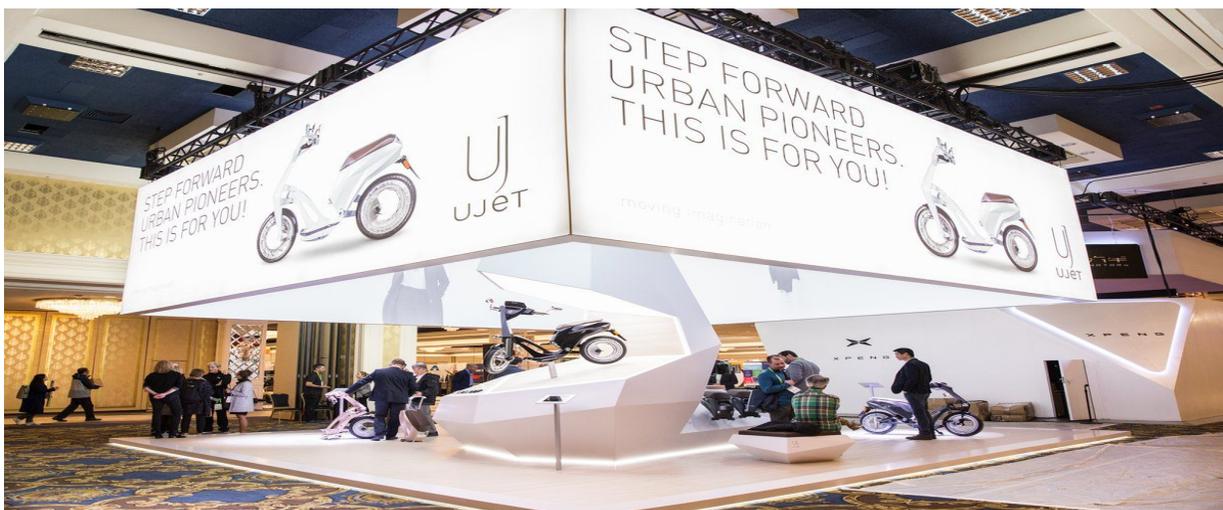


Electronics company [RealBotix](#) is behind the mechanics of the latest iteration of their A.I. sex app, Harmony. The Harmony A.I. was built to merge with Abyss Creations’ famous RealDoll and entered the market last year as the first commercial sex robot. The entire package received a hardware and software upgrade for its debut at CES 2018 with the name Solana, and was featured at a special release for *Engadget*, which you can read [here](#). Along with the robot’s appearance is an app that controls the robot’s customizable personality. The entire suite is likely to be available soon and cost north of \$10K. Given the attention it received at CES, we’re likely to see more offerings in the very near future.



**Vehicles of the Future** – This category is increasing exponentially and indeed took up a much larger area of floor space this year. There were **six new electric/hybrid car concepts** that entered CES 2018 from companies large and small that showed advancements in smart applications as well as extended battery capacity and mileage.

However, there was also a widening range of electric locomotion on display in the form of bicycles, scooters, motorcycles, mopeds and more. This one from **Ujet** appeared to be the most sophisticated of the group.



The Luxembourg-based company is moving beyond the selling point of efficiency and into the realm of connectivity for smart cities, which are quickly moving from future tech to a present reality. The scooter is certainly efficient with a range of more than 90 miles on a single 2-hour charge, but it's also equipped with USB ports, GPS, Bluetooth, and WiFi with 4G connectivity. They are looking at a late-2018 rollout in the U.S. for a price tag of around \$10K.

Naturally, autonomous vehicles of every stripe were also on display from major companies like Honda, GM, Ford, Daimler and Toyota. In fact, as *Forbes* reported, this category “stole the spotlight.” Of course, this category does not only consist of single consumer vehicles, but the steady roll-out of autonomy in shared services like Lyft, as well as start-ups like the [Rinspeed Snap](#), which is a self-described type of skateboard-pod designed for inner-city transportation that received various media awards for its design.



It's also worth noting that more floor space than ever before was devoted to consumer drone technology, despite the increase in government oversight and tracking. All types of smaller drones were on hand from the palm-sized [AirSelfie](#) for casual photography, up to the latest drones equipped with 4K video at high frame rates that cost thousands, to an underwater drone called the [PowerDolphin](#) that shoots video, finds fish and can even rescue swimmers. But it was the appearance of full-on air taxis that highlighted how close we might be to autonomous and self-directed air travel. Well-respected [Bell Helicopter](#) showed off their concept as seen in the image above, as well as the Intel-backed fully electric [VC200 Volocopter](#) that aims to be the future Uber of air taxis.



**Health Technology from Body to Brain** – It's a testament to how healthcare is evolving from B2B to B2C strategies that among the largest presence at a consumer-based tech event was in the field of medicine. Readers might recall that I covered

Predictive and Precision Health in [Issue 6](#), and it appears that all manner of electronic integration is starting to be showcased.

3D-printed prosthetics, electronic skin, and ingestible pills with built-in sensors reinforced the direction of doctor-directed medicine in the future. However, it was the explosion in technology for self-directed monitoring and care that stole the show; and most of it centered on smart gadget integration with an array of sensor technology.

Neutrogena now has an app to analyze skin with an A.I. scan from your smartphone. Artificial intelligence also showed up in a line of baby care products, as well as smart applications for pet monitoring. Smart sleep is a fast-growing segment for consumers and the latest offerings on display consisted of smart mattresses and pillows that monitor sleep patterns and change form for personalized settings. Chinese company, Siren, displayed an example of their “[Neurofabric](#)” with what amounts to a very advanced type of smart sock embedded with sensors that can alert diabetes patients and their doctors to changes in foot temperature. Smart tech company, [MiLi](#), has designed the first smart cap with a built-in UV meter to serve as a reminder of sun exposure levels.

There was also a pronounced increase in the presence of products focusing on the brainwave technologies of neuroscience. One company, [Halo Neuroscience](#), is taking the fitness wearable app to the next level and has created a headset to strengthen mental synapses through “Neuropriming” that uses “electrical stimulation during movement-based training to build stronger, more optimized connections between your brain and muscles.” As *Men’s Health* cited, at least 20% of people belong to a gym, which certainly points to a solid market for these types of products.

As the moderator for CNET's "[Next Best Thing](#)" panel discussion of future medicine aptly stated, "This is so huge, I don't where to begin."

\*\*\*

*For many people, it's actually the even stranger products that attract the most attention at the annual CES. Here are a few more innovations that had people buzzing...*

**Brain/Car Interface** – This might stretch believability for most people, but this is increasingly being researched and made its appearance at this year's CES from Nissan with their "B2V" interface. If we take into account the advances already made with autonomous vehicles, plus the aforementioned work in neuroscience for brain-computer interface in healthcare, it stands to reason that it isn't so outlandish that the two areas could overlap. As [Bloomberg reported](#):

The "B2V" system requires a driver to wear a skullcap that measures brain-wave activity and transmits its readings to steering, acceleration and braking systems that can start responding before the driver initiates the action.

The driver still turns the wheel or hits the gas pedal, but the car anticipates those movements and begins the actions 0.2 seconds to 0.5 seconds sooner, said Lucian Gheorghe, a senior innovation researcher at Nissan overseeing the project. The earlier response should be imperceptible to drivers, he said.

However, it is unlikely that people will be willing to wear this contraption:



**Sigma “Project Meteor”** – We’ve heard about the imminent arrival of autonomous long-haul trucking, but this concept will keep the human element as a backup by having a fully functional cockpit offsite. It is a remotely operated Peterbilt 579 semi-truck that aims to exactly replicate all of the sensory input that the actual truck is receiving in its journey.



The company suggests that this would offer the economic benefits of autonomous trucking, while keeping a human operator involved and close to home. One of the issues that the company raises is signal interference. We could imagine how devastating it could be if the autonomous system were to be interrupted in any way, especially if carrying hazardous materials. In this case, the human operator could take over as needed.

**Smartphone-powered Laptop (Project Linda)** – Razer has one of the most respected names in computing and drew a ton of attention for their iteration of a concept that has been around for a while. Essentially, the area where we typically find the trackpad on a laptop is replaced by a detachable smartphone, which results in an easy way to integrate both functionalities.



Project Gemini had a scaled-down version that showed off a physical keyboard integrated into a foldable smartphone case. While neither of these products has much of a chance for release, it seems that people are still intrigued by new possible form factors that can meld some of the aspects of mobile and desktop computing into a more versatile single product.



**COUNTERMARKETS**  
Trends & Strategies for Maximum Freedom

## ENTREPRENEURSHIP

*Build A Live Broadcast Studio For Under One Thousand Dollars*



**By Vin Armani**

I recently had a conversation with fellow podcaster and Bitcoin thought-leader Chris Derosé which culminated in a discussion of the emergent value of independent content creation. Chris and I both create live video productions that are viewed by thousands.

We both also maintain a constant presence on Twitter and interact within our respective communities as often as possible.

Although our communities (and there is significant crossover) are niche - his being the more technical end of crypto and mine being the crypto end of liberty - both Chris and I are able to make a living with our broadcast as our platform. However, as Chris and I explored in our conversation, profit is not necessarily the most valuable thing that a content creator can take from the process of creating that content. Producing The Vin Armani Show and putting my thoughts out to public scrutiny has helped me distill those thoughts into a much more powerful and elegant offering. Crowdsourcing critique has helped me grow as a thinker and an individual.

You, no doubt, have important ideas that you should be exploring. That shouldn't be just a passive endeavor. Of course, consuming content that enriches the mind and spirit is an important part of the equation, but creating your own content and sharing what you've learned (and are continuing to learn) is not to be ignored.

Articulating your ideas is the best way to truly grasp what you actually know and what you still have to learn on a particular subject. Content delivery platforms with global reach, like YouTube and iTunes Podcasts, are free to use and easy to master. Emulate the style and format of content that you enjoy consuming and, over time, your own style will develop. There is no reason not to dip your toe into the water of content creation. In this article, I will give you a leg up on taking the first step... creating your broadcast studio.

I have been a regular creator of content for 2 decades. I started my first radio show on American Radio Network in Hollywood in 1998. From there I branched out into early live Internet

broadcasting, ran a pirate radio station in Los Angeles, produced music and films and starred in a television show on Showtime.

When it came time to build the studio for *The Vin Armani Show*, I was well prepared technically, but there was still some trial and error in getting the equipment right. Thankfully, I had other content creators in my circle with whom I could consult. My current set-up is incredibly powerful and incredibly cost-efficient. Here is the basic gear to build your own broadcast rig for under \$1000.

### **Laptop and Additional Monitor**

In our studio, our main broadcast machine is a desktop tower. However, I do also keep a backup laptop with our broadcast software installed on it. Starting out, a laptop is a great choice. If you have a laptop already, even better. The software that I recommend currently only runs on Windows machines (specifically Windows 10), so keep that in mind. You will need at least a 2GHz, dual-core processor and 2GB of RAM. You can find plenty of used laptops in good condition with these specs. Likewise, an additional monitor is absolutely crucial if you plan to interview guests or use Web content in your video presentations. Plan on spending about \$250 for a used laptop and monitor on eBay or Craigslist.

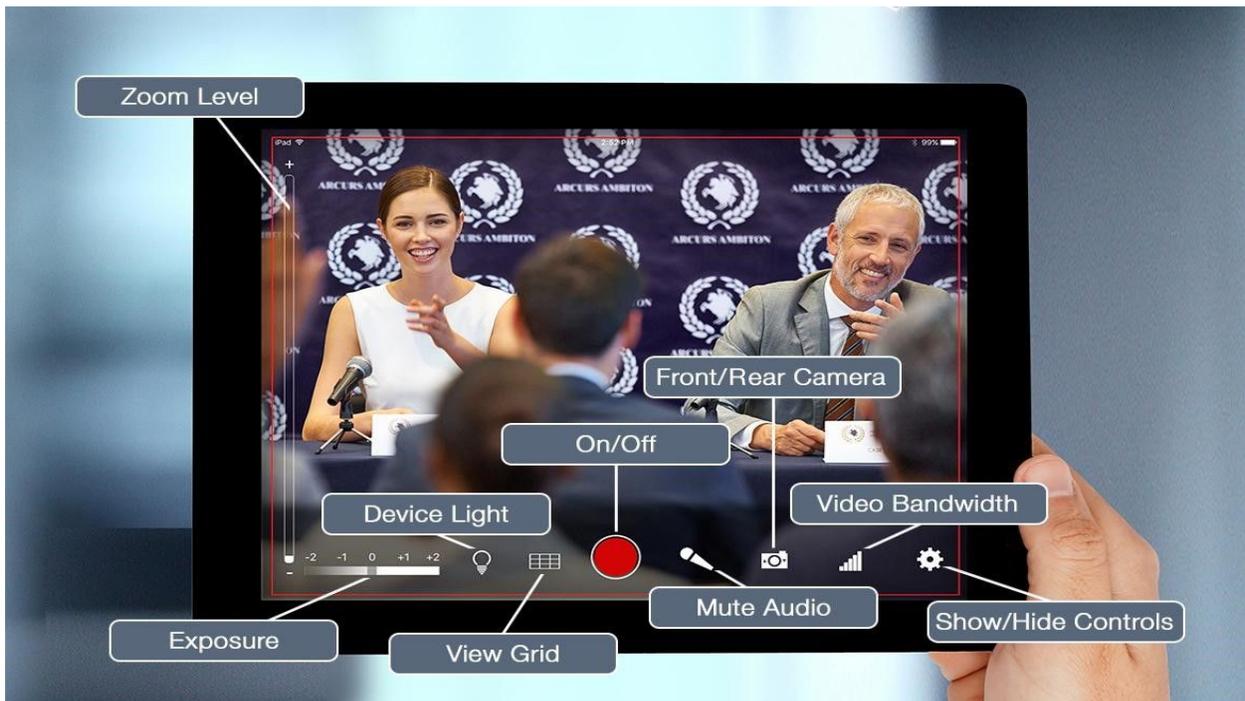
### **Software**

I use [vMix Broadcast Software](#) and I absolutely love it. It supports multiple simultaneous live streams to any combination of YouTube, Facebook, Periscope, Twitch, and many other platforms. The company has a large suite of instructional videos and the software is constantly being updated with new features and increased stability. You can download a working copy of vMix for free, but the free license does not allow HD resolution video. If you have a very basic visual set up, the \$60 Basic HD license will

get you up and running and ready for YouTube. *The Vin Armani Show* is visually complex, so we utilize the software under the standard HD license (\$350).



vMix also has fully integrated NewTek's NDI technology. [The NDI Camera smartphone app](#) (\$20 for Android or iOS) turns your phone or tablet into a wireless HD camera that integrates seamlessly with vMix.



## Microphone

Great audio quality is probably the most important key to keeping your audience watching and listening to your broadcast. I am a stickler for audio, having worked in the field for as many years as I have. If you watch *The Vin Armani Show*, you will notice that my co-host, Christian Rais, is using a very distinctive gold and green mic. This is the Marshall [MXL V67](#). I cannot say enough about this microphone, but the audio quality of Christian's voice on the show says it all. The best part about this mic is that it only costs \$60 on Amazon (where it is rated 5-stars). It may be the best-kept secret in pro-audio. Enjoy!



## Mixer

We went through several mixers before settling on the Soundcraft Signature 10 that we currently use for the show. Our specific needs and my own preferred workflow called for functionality that only this mixer provided. However, for most Internet broadcast

uses, the Behringer Xenyx series of mixers are fantastic. This is a sound card, analog mixer, and microphone preamp all in one, at a truly affordable price. The [Behringer Xenyx Q802USB](#) is a best seller on Amazon at \$80. Combined with the Marshall mic, you will have broadcast-quality audio right out of the gate. It will also give you great control over the volume of Skype or Google Hangouts guests that you may bring onto the show.



## Cameras

We use three different HD Cameras on The Vin Armani Show. I happened to have a DSL with a live HDMI monitor output just laying around, so we use that. I also purchased a 4K Handycam - which may have been overkill. The camera that is fixed on Christian's position in the control room often ends up providing the highest quality video out of the three. That control room camera is a \$50 [Logitech C920 HD Webcam](#) with a \$20 [GorillaPod Tripod](#). The best part about using USB webcams as inputs is that you don't have to add additional video capture equipment to your rig. With good lighting and minor tweaking, the

C920 delivers remarkably excellent HD video in a traditional, fixed studio setting.



## Lighting

Great lighting is the key to great photo and video content. I admire those truly talented artists who really know how to work with light. I think we do pretty well on our little show, but there is always room for improvement. A videographer friend of mine turned me on to LED panel lights as we were building our studio and the package he suggested has worked out great. We use a panel lighting package from Aputure. Those particular lights can get pricey, though. There are many other good manufacturers of LED panel lights for a studio setting. There is a [Neewer Lighting Package](#) on Amazon which includes 2 lights and stands for \$220. That is a really great entry price point for a solid product. You will also want to invest in a couple of [Kamerar D-Fuse Soft Boxes](#) to control light diffusion (\$60 for a pair).



## Live Broadcast Studio

- Used Laptop and Monitor - \$250
- vMix Broadcast Software - \$60 (to \$350)
- Marshall MXL V67 Microphone - \$60
- Behringer Xenyx 802USB Mixer - \$80
- (2) Logitech C920 Webcams + stands - \$70 each
- Neewer Lighting Package + soft boxes - \$280

**Total Cost - \$870 (up to \$1160 with vMix HD license)**

This studio setup will enable you to produce content on par with top YouTubers and podcasters. I have really enjoyed doing a live video podcast. There is more upfront preparation, but almost no post-production editing. We run our video show with an eye toward our audience who only consume the audio portion - we strip the video and post an audio-only podcast. The rig that I've detailed will give you maximum flexibility for designing your own production flow and for getting your content online and to your audience with ease.



**COUNTERMARKETS**  
Trends & Strategies for Maximum Freedom

## **SELF-SUFFICIENCY**

### *Urban Agriculture: Getting Started With Indoor Hydroponics*



**By Brian Berletic**

### **Introduction**

Hydroponics is a method of growing plants without soil. It allows food to be grown virtually anywhere. It is a technical method that

is easy to learn and get into, but takes a bit of time and patience to master. Luckily, it is not as intimidating as it may seem, and as more people begin experimenting with hydroponics, the wealth of information they are sharing online makes it easier than ever to get started.

## **Why Hydroponics?**

The dense urban sprawl of many cities makes it very difficult to grow your own food through traditional means. Safe soil in an open space with adequate sunlight is hard to find. Even on rooftops where open space exists, bringing soil upstairs and maintaining a garden under the beating sun or in the freezing cold and amid flocks of marauding birds is a lot harder (we've found out) than it seems.

Hence hydroponics. With hydroponics, you can grow food anywhere. Outdoors, indoors, with or without access to sunlight and without any need for soil. After experimenting with rooftop and balcony gardens with mixed results, hydroponics enabled us to finally grow enough food indoors for daily consumption despite living in the middle of a dense city.



For now we are growing only salad greens. But hydroponics can be used to grow a wide variety of fruits and vegetables. It is just a matter of adjusting your grow space, containers, nutrients, and lighting.

### **Grow Space**

A hydroponics system can be set up anywhere. They can range from expensive dedicated greenhouses outdoors or on a rooftop, to a shelf in the corner of your room, to even a tabletop “grow box.”

We have created a shelf system and an experimental tabletop system using corrugated plastic hobby board as side panels to control ventilation, and by placing aluminium tape on one side to reflect artificial light back onto plants.



We use "super strong" magnets (neodymium magnets) and place them under the first layer of the plastic board by cutting a small incision with a razor, then sealing it in with clear packing tape. This makes our panels magnetic and easy to remove and reinstall, which allows us to easily make changes or access our shelves for cleaning and maintenance.

However, we have seen hydroponics setups that dispense with reflective paneling. It is really up to the individual grower to experiment and find out what works best for their space, climate, and selected crops.

A growing space can be any space you have to spare in your room. Just keep in mind you will be using water and electricity in close proximity. Ensuring your space is set up so any spill avoids your electrical system is key for safety.

## Grow Containers

The actual containers you grow your plants in can vary. Many use plastic containers, but we sought to avoid any extra chemical contamination of our food so we opted for glassware. We cut two holes in the top of the plastic lid that comes with the glassware. We also cut a smaller hole for our air pump line, which we'll explain later.



The glassware is expensive and heavy, but is chemically neutral, will last forever, and if ever you decide to end your hydroponics experiment, you will have quality cookware to use in your kitchen or to store leftovers in your refrigerator.

## Nutrients

Hydroponics uses nutrients that are often sold as A and B solutions. These two solutions combine nitrates, iron, and calcium (solution A) with phosphates and sulfates (solution B) but are kept separate before being used for growing. For salad greens, we have been using 12 cubic centimeters of each in a 6-liter water bottle. A is mixed thoroughly with the water first before adding B.



We use a basic syringe to do our measuring, but kitchen measuring cups work just as well, and some nutrient solution bottles come with a measuring cap of their own.

Then we simply add the nutrients to the glassware container until it touches the sponge material that our plants are growing in. As

the plants grow larger, we fill the solution to cover only the roots, leaving the waterline below the sponge.

Nutrient solution can be bought at gardening centers and markets, online, or at hydroponic speciality shops.

Before harvesting for eating, we make sure to switch out the nutrient solution for fresh water and let it sit for 2-3 days. From then on, you can harvest leaves for eating or selling.

Another factor is pH. We're lucky enough not to need to worry about this. We've gotten tremendous results with our nutrient solution and regular filtered water. Some growers in locations with poor water quality or who are trying to grow fruiting plants are required to adjust the pH of their water and solutions and monitor it closely either with paper testing strips or digital pH meters. If you've tried everything else and are still suffering poor results, pH may be the factor holding you back.

### **Nutrient Circulation**

Placing nutrients into a container with roots soaking in them does not work well without proper circulation. Some hydroponics systems use water pumps to keep a steady supply of nutrients flowing past roots before returning to a large container where the pump circulates it back up again.

Others, including ours, use air pumps to agitate the nutrient solution. Air is fed into the nutrient solution and around the roots and also circulates the nutrients themselves around the container.

This is the simplest possible solution, negating the need for any sort of plumbing.

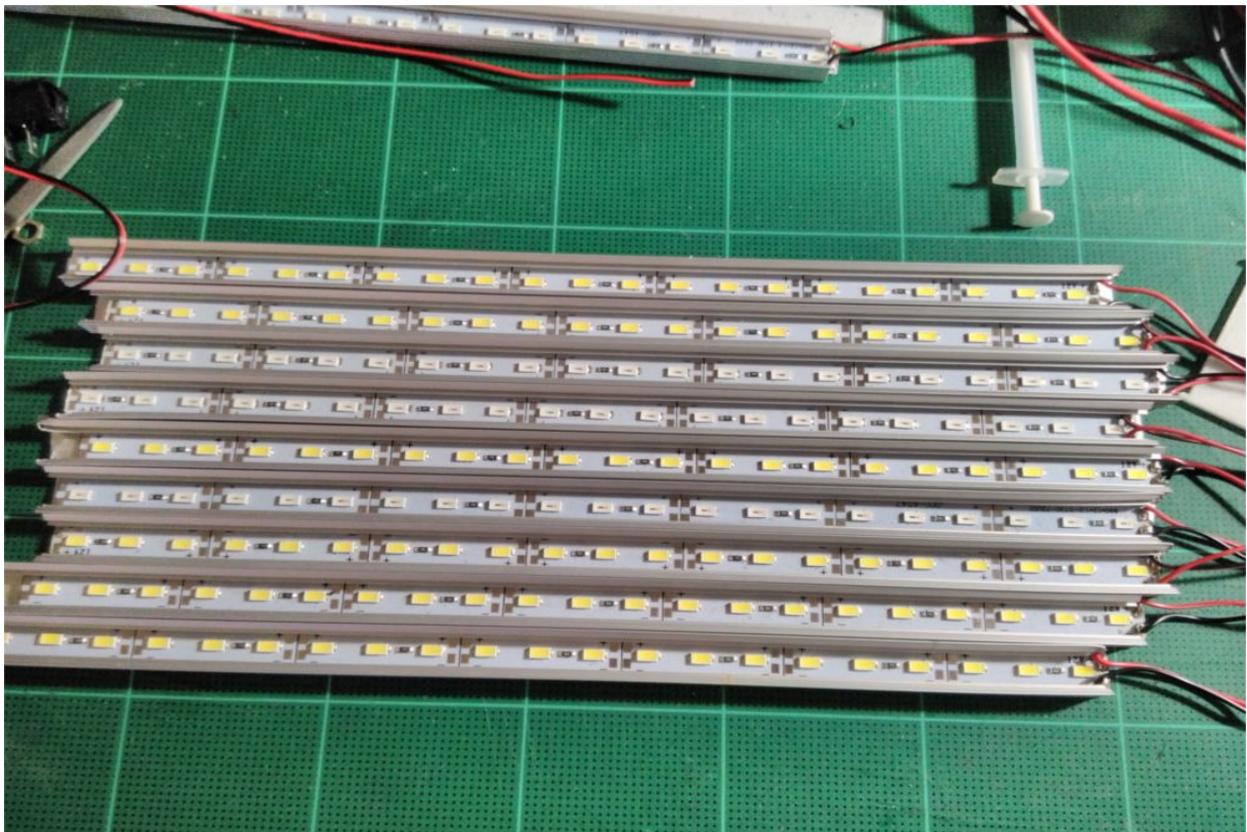
We use typical aquarium air pumps and silicon (not PVC) tubing placed directly into the growing container (no air stone). This has worked best. You can experiment on your own with two

containers; one with air bubbling in, and one without, and see for yourself the difference.

With a single air pump and aquarium-style air line splitters, you can supply air to multiple containers at once, or to a large container via multiple points.

## Lighting

We have experimented with indoor lighting for years now, and have found a variety of ways to grow plants indoors. Previously, we used 40 and 50 Watt LED floodlights suspended above our plants. This worked well, but a floodlight creates a single spot of intense light, while a large indoor garden really benefits from a more distributed source of light.



LED strips are the answer, but require careful planning and wiring, which in turn requires a little bit of electrical skills from those who are designing the system.

If done carefully and under the guidance of a professional (if you lack electrical skills yourself), it is relatively easy and fun to learn how to safely design and build LED strip lighting systems.

The LED strips we used were 1 meter long 12V LEDs running at about 1-1.5 amps per meter. We bought 6 white LED strips, 2 red, and 2 blue.

The LEDs are intense, the brightest we could find, and came in rigid aluminium bars that act as heat sinks. Because you can cut LED strips at their break points and use both pieces, we cut the strips off at 80cm (because our shelves are 80cm wide) and used the shorter length for our tabletop version.

When mixed together, the color is mostly white with a tinge of pink. With our tabletop version we have only been using the red and blue which when combined make a purple hue common with indoor LED grow lights.

There are many resources online regarding the different spectrums plants use to grow and flower. Depending on what plants you are growing, you may want to adjust the percentages of white, red, and blue. There are a lot of videos online with growers presenting the results of their own experimentation with different color spectrums.

One useful lesson we've learned is how to tell if your artificial lighting is adequate or not. If your plants are tall and skinny into the lights, you do not have enough light. If your plants are growing wide and squat, your lighting is good.

Of course, if you notice your plants are wilted or even scorched at the edges of the topmost leaves, and room temperature and air circulation are already adequate, your lights are too intense. Put more space between the plants and your lights.

## Power Supply

We are using a typical 12V 20A power supply [like this one pictured here](#) for both our shelf system and our tabletop system.

The power supply has simple screw terminals. The main power plug we used had 3 wires color coded for live, neutral, and ground. On the face of the plug, the letters 'L' and 'N' help distinguish further which wire is which.



Use a multimeter's continuity function to check, double check, and triple check which one is which before attaching the wires to your power supply. It is best to have a trained electrician check your work before connecting anything if you have no experience with electronics.

The other screw terminals are your 12V positive and negative connections. For the LED strips, we soldered wires to the positive and negative terminals on the strips, and [tinned the ends of the wires](#) before connecting them to the appropriate screw terminals on the power supply.

Once everything is wired, close the plastic protective cover and make sure your power supply is in a safe location; safely above any source of water, and safely above and away from untrained hands of both children and adults who may be tempted to touch the power supply. We keep ours at the very top of the shelf in a plastic box with a fan built into it. For our tabletop version, the power supply is safely hidden in a vented compartment at the top of the system.

Power supplies used for hydroponics should have a built-in fan because they will be left on for long periods and get extremely hot. With a fan, the power supply will barely be warm to the touch. Without a fan, the power supply will become scorching hot in just a few minutes. The fan is a must.

## **Ventilation**

In addition to fans for your power supply, you may also want to include fans for cross ventilation to both keep a general flow of air moving through your greens to deter mold and to continuously remove excess heat from your lighting to prevent it from building up in your grow space.



We use one 135mm computer fan for each shelf, and a similar fan for our tabletop system. The fans are 12V so we were able to wire them into the power supply used for the lighting.

The fans themselves are installed into our magnetic panels. We simply cut a 135x135 mm hole out in the plastic board and hot glued them in. We used 3D printing to create covers for the fans to prevent fingers, tools, and greens from accidentally getting caught in them.

In previous systems lacking large fans with adequate ventilation, we have experienced mold issues. Since using the 135mm fans, we have not had these problems. Again, depending on where you

live, you may or may not need the extra ventilation. We have seen large systems in temperate climate zones that require only a single room fan to keep air circulation optimal.

## Automation

Our system requires the flipping of one switch on a power strip in the morning and evening to turn everything on and off. We manually flip this switch, but it just as easily could be put on an ordinary timer you can buy from a home improvement or electronics store. While we would recommend leaving the power supply's mains wires alone, you could add relays and individual switches in for your 12V lighting and fans if you have experience in electronics.



These relays could be controlled by an Arduino or Raspberry Pi single-board computer.

Adding in simple rockers could also allow you to manually control your lighting and fans independently of the main power switch. This is how we've set up our tabletop grow box, specifically so we can experiment with different combinations of light and air circulation.

## **Closing Thoughts**

We are able to grow enough salad to eat every day with just 2 shelves. Our tabletop system is also very successful and is allowing us to quickly experiment, prototype and improve our overall methods. With everything proven, the next step is simply scaling up.

Unlike an outdoor garden, an indoor hydroponics system is easy to maintain, free of insects and mold (if ventilation is adequate), and requires no chemicals. Maintenance is limited to turning on and off the power, adding nutrients as levels in containers drop, and replacing harvested plants with new plants sprouted in the same sponge blocks used in the glassware containers.

The initial investment was around \$200 USD, including the shelf; but the amount we save in growing our own food versus buying it means that in just under 6 months the system has paid for itself.

For makers and designers, the skill sets you will master setting up your hydroponics system can be used in a multitude of other projects. The knowledge we've gained just by learning about wiring up LED systems can be applied to many other projects.

It is important not to overthink before jumping into hydroponics. Start small and scale up when you finally have the basics worked out. A single aquarium air pump and 2-3 plastic containers under

a single grow light can be enough to get started, representing a minimum financial investment.

It is also important to be patient and expect early failures and be prepared to change and adapt until you find the mix of technology and conditions that best suit your situation.

Mastering hydroponics and having a corner of your room producing enough food to eat on a daily basis is a rewarding experience. Turning an entire room into a hydroponics grow space can even be the foundation of your own small business selling greens and other vegetables.

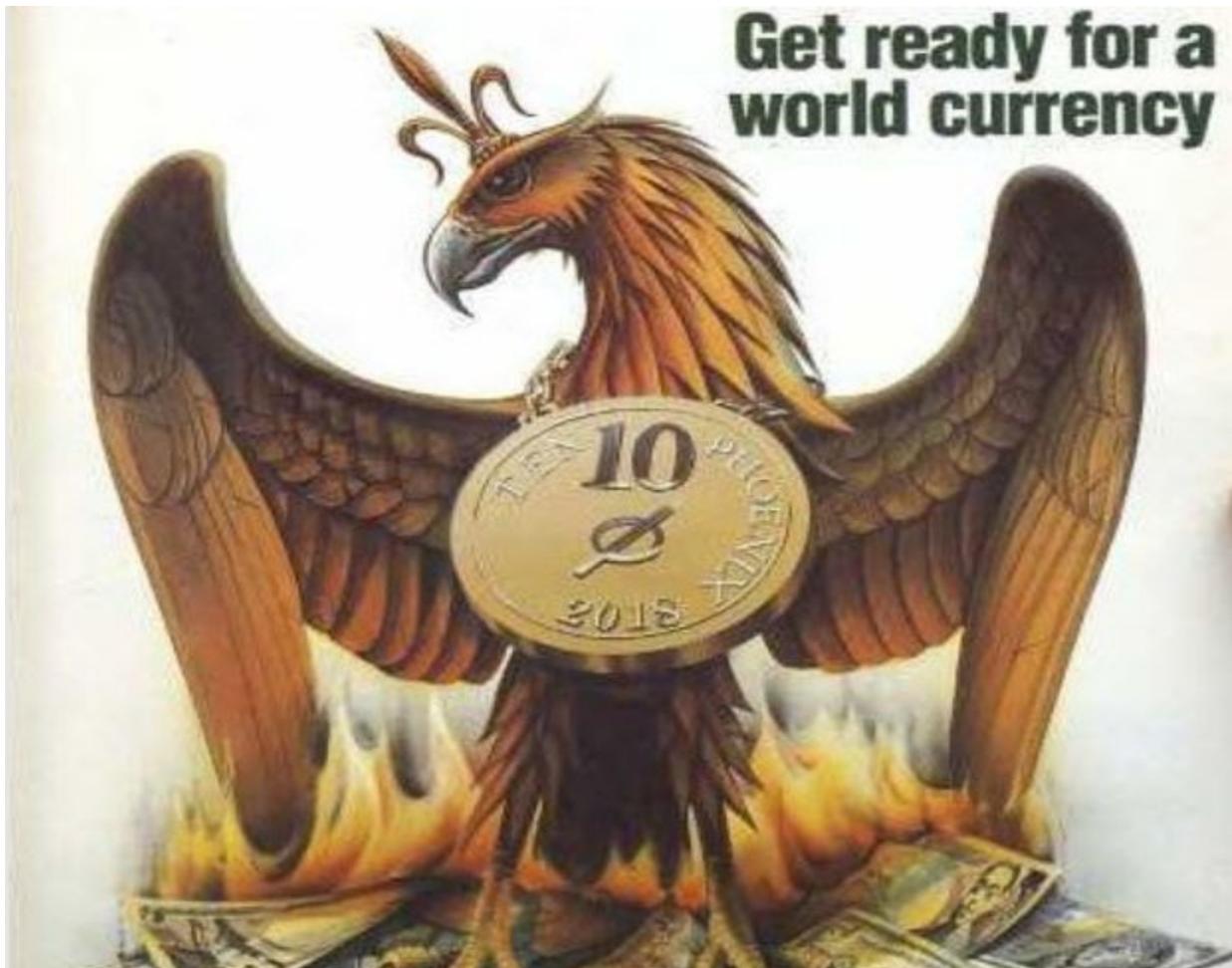
If you have good soil and live in a rural location, it probably doesn't make much sense to get into hydroponics beyond curiosity. But for city dwellers in dense urban environments, mastering hydroponics and artificial lightings is a practical way to get growing and to keep growing.



**COUNTERMARKETS**  
Trends & Strategies for Maximum Freedom

## WEALTH

### *How To Avoid Losing Everything In The Dollar Collapse*



**By Jeff Paul**

In 1988, an *Economist* magazine cover depicted 2018 as the year that government currencies will fail and a new “world currency” will emerge. If this prophecy is to come true, we can expect to see an epic collapse in the trust of major fiat currencies like the US Dollar sometime this year. As we enter March, signs of instability with the dollar are beginning to emerge at the same time trade wars are heating up.

Could this be the start of the dollar collapse? How can you protect yourself?

The dollar collapse is already happening. It's been happening in slow motion since the Federal Reserve's founding in 1913. The purchasing power of the USD has been diminishing every year by design. The Federal Reserve's stated annual goal is 2% inflation to the cost of living. Using the government's conservative inflation number of 2% per year, the dollar has lost half its purchasing power in last 35 years. In other words, it's a doubling of prices every 35 years. Yet every consumer knows that real inflation is much higher, especially for things like health care and college. And due to runaway national debt, inflation is accelerating, which may result in another dramatic dollar revaluation event.

There have been two significant dollar-devaluation events since the Federal Reserve system began. The first happened when President Franklin D. Roosevelt [made owning gold illegal](#) in 1933, forcing citizens to sell their gold to the government for \$20 per ounce. Almost instantly after the US government had all of the gold, they adjusted the price-per-ounce up to \$35. A 75% devaluation of the dollar practically overnight.

The next substantial devaluation of the dollar happened in 1971 when President Nixon unilaterally canceled the direct international convertibility of the dollar to gold. The Vietnam War had basically bankrupted the US and Nixon needed a way to deal with the debt.

Inflation was seen as the least politically painful method to dissolve unpayable debts. The price of gold jumped from \$40 to \$183 per ounce by 1974. That's 457% inflation in just three short years. Six years later, in 1980, the price of gold hit \$600/ounce.

Due to unsustainable debt levels, I expect the Federal Reserve to continue to print their way out of debt. But they could also resort to a dramatic write-off or devaluation event of the dollar. *The Economist* cover seems to indicate a dramatic event (burning fiat money) may occur.

Either way, the effect will be a steep rise in the price of anything measured in dollars – including assets. Some have referred to this steady destruction of the dollar as a “melt-up” in the markets because the price of stocks and other assets is climbing without fundamental cause.

*Investopedia* [describes](#) a melt-up as “A dramatic and unexpected improvement in the investment performance of an asset class driven partly by a stampede of investors who don't want to miss out on its rise rather than by fundamental improvements in the economy.”

Investors stampede because they're seeking an asset that holds its value or grows against a rapidly weakening dollar.

This appears to be happening over the last six months in the FOREX markets, in the price of oil, and gold to a smaller extent. And you all know what happened to the price of cryptocurrency in the last 12 months.

\$ 61.45

▲ 0.46 0.75%

SETTLEMENT PRICE 03/02/18

\$61.25



*Oil Price 3-year chart – Market Watch*

The price of oil has marched about 50% higher in the last six months as shown in the chart above. The USD lost over 10% against other currencies and gold in the last 12 months. And until Trump's recent call for tariffs, the stock market was melting up nicely. Could we be headed toward a breaking point?

### **Protecting Yourself From A Dollar Collapse**

There are many mainstream articles about how to protect yourself from the dollar collapse. They include basic advice like get out of debt, store food and water, buy gold and silver, start a side hustle, and so on. These are definitely smart things to do, which I wrote about in an article in our March 2017 issue titled [\*Your Off-Grid Financial Plan: From Zero to Millions\*](#).

In that article, I outlined 14 ways to build wealth outside of Wall Street which also apply to insulating yourself against the dollar collapse including investing in your food pantry, useful equipment, precious metals, cryptocurrency, collectibles, real estate and

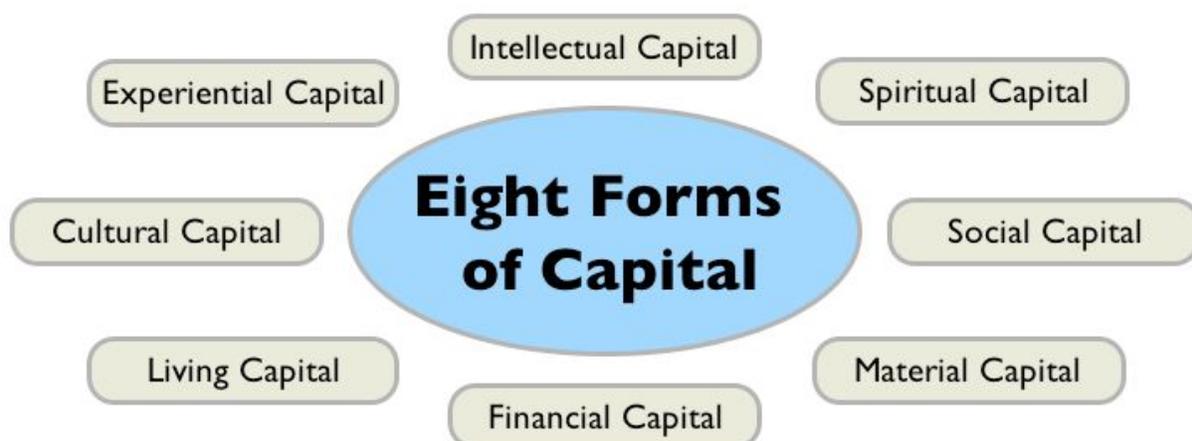
more. These are just a few assets whose prices will melt up in a dollar collapse scenario. These are self-evident steps. I want to dive a little deeper.

You've probably heard the statement that if you took all the money in the world and split it evenly to all humans, the rich would end up with most of the money again within a generation. Why is that? Is it because of intelligence, work ethic, or something else?

Money is only one form of capital. And money is merely a measure of the amount of value an individual exercises in society or the market. In fact, money (dollars) may be viewed as one of the weakest forms of capital. That's why investors *stampede* to find assets more valuable than their money. Since value comes in many forms, so does capital.

There are eight forms of capital. Understanding and cultivating them in your life is essential to making yourself into the type of person who can succeed against all odds, including a once-in-a-generation economic event like a dollar collapse.

## 8 Forms of Capital



It's important to build all eight forms of capital because some of them are things that can't be taken from you through force or inflation. Money and valuable things (financial and material capital) can be taken, but you'll likely get it back very quickly by tapping into your other forms of capital. In fact, financial capital is usually just a reflection, or result, of your value in the other categories.

## **Financial Capital**

Financial capital is what most people think of when they hear the word capital. Money, stocks, precious metals, and cryptocurrency are all forms of financial capital. In a slow dollar collapse, or rapid melt-up, the dollar-value of assets like stocks, precious metals and cryptocurrency are likely to increase dramatically. We've already seen the stock market climb to record highs, cryptocurrencies explode, and oil moving higher. And the bulk of the necessary money printing hasn't even begun yet.

## **Material Capital**

Material capital is resources, structures, equipment and tools. More broadly, it's all non-living physical objects. Raw and processed materials like stone, metal, timber, and fossil fuels. Structures and other infrastructure count as material capital: buildings, roads, bridges, water wells, power lines, etc.

Other types of material capital include equipment, tools, and software.

When I lived in Costa Rica, every time a local builder saw me working on my computer he referred to it as my "machete" because it's the tool (material capital) that I use to make money (financial capital).

## **Social Capital**

Social capital is the relationships that you have with other people. It's your network. It's your ability to make friends and negotiate.

Social capital is built on trust. Jack Spirko says the key to entrepreneurship is to “Say what you do, and do what you say.” It's as simple as that. That's what builds social capital.

There's a perennial best-selling book that can help you expand your social capital. It's called *How To Win Friends and Influence People* by Dale Carnegie. It's worth owning and re-reading every few years to refocus yourself on the importance of relationships.

## Natural Capital



Natural capital, or living capital, is another form of wealth that persists despite what happens to the value of the dollar. Living capital is food and water. It's land with the ability to produce something of value like having a fruit orchard, natural spring, garden, livestock, a trout pond, timber, oil or gas reserves, etc.

You don't even need to own the land for it to represent a form of natural capital for you. If you live near wilderness and you know how to hunt, trap, fish, forage and collect and purify water, you can tap natural capital as needed.

### **Experiential Capital**

Experiential capital is your marketable skill set. Vin Armani is fond of saying “You can't be broke with a pocket full of diamonds.” By diamonds, he means skills. But not skills alone. Skills combined with a history of using them in valuable ways. This wisdom (skills + experience) is sometimes called “Human Capital.”

### **Intellectual Capital**

Intellectual capital is made up of knowledge assets. The majority of the education system is focused on imparting intellectual capital. College or any professional training is primarily an exchange of financial capital for intellectual capital. In our culture, intellectual capital is touted as one of the surest ways to find success, but it's becoming less about what you know and more about what you know how to do.

Being seen as an expert, or having knowledge or the truth about any particular subject, gives you enough intellectual capital to convert into financial capital at will.

### **Spiritual Capital**

Spiritual capital is gained by being motivated by a higher purpose. Knowledge of and dedication to a belief system has incredible value. Mormons are a great example. The Mormons practically have their own economy based on spiritual capital. When Mormons move to a new area, a welcome party of strangers is there to help them get settled. Among that welcome party are business owners of all types offering services, jobs and even welfare to the newcomers. But not all spiritual capital is religious.

Our project CoinText is motivated by a higher purpose. We believe humans should be free to trade value with other humans without permission from a formal authority. Thus our mission is to deliver honest money and financial sovereignty to anyone with a mobile phone; to free them from dependence on corrupt central banks and commercial banks.

## **Cultural Capital**

When you spend any significant amount of time in a foreign country, you will likely seek out other expats from your native country to hang out with. This happens because you value your common culture. There is an infinite amount of sub-cultures that also bring people together. Entrepreneurs who're authentically participating in a specific culture (niche) will always possess "capital" to overcome deficiencies in other forms of capital.

A good example is Apple Inc. who became the Goliath they are today because they had more cultural capital with artists and rebels than they had financial or material capital. Again, financial capital is usually the result increasing other areas of capital.

On a micro-level, there are countless skills you can learn within sub-cultures that give you the ability to accrue other forms of capital. Learning to play the blues guitar or to make a killer brick-oven pizza gives you cultural skills that allow you to build more social capital, at the very least. Back when people traveled by sea, the bards and the cooks were often the most valued shipmates because of their cultural skills.

## **8 Forms of Currency To Focus on When the Dollar Fails**

## Eight Forms of Currency

Capital	Currency	Complexing to...
Social Capital	<i>Connections</i>	<i>influence, relationships</i>
Material Capital	<i>Materials; "natural" resources</i>	<i>tools, buildings, infrastructure</i>
Financial Capital	<i>Money</i>	<i>financial instruments &amp; securities</i>
Living Capital	<i>Carbon, Nitrogen, Water</i>	<i>soil, living organisms, land, ecosystem services</i>
Intellectual Capital	<i>Ideas, Knowledge</i>	<i>words, images, "intellectual property"</i>
Experiential Capital	<i>Action</i>	<i>embodied experience, wisdom</i>
Spiritual Capital	<i>Prayer, Intention; Faith, Karma</i>	<i>spiritual attainment</i>
Cultural Capital	<i>Song, Story, Ritual</i>	<i>community</i>

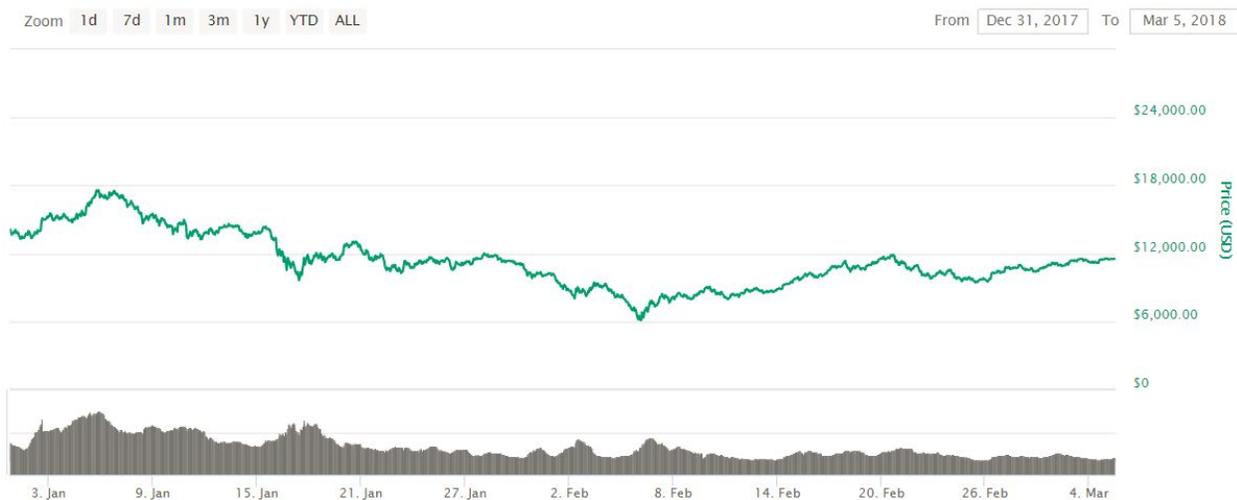
If you focus on building each form of capital and currency, you'll be able to withstand just about anything.

I wouldn't be surprised to see the stock market, cryptocurrency and gold cool off for a bit longer before the next phase of the melt-up commences. But if we're to take *The Economist* cover prophecy seriously, we could expect to see a severe devaluation or loss of confidence in the dollar before the end of this year.

Get prepared and stay free!



## BITCOIN & SILVER REPORTS



The pullback that began in January continued into the first week of February. We saw Bitcoin hit a low of just above \$6,000, and then bounce sharply higher to nearly \$12,000 just a couple of weeks later. Since that bounce, we've hovered in the \$9k to \$12k range, with prices remaining relatively stable in the past few days.

One reason being cited for the drop to near \$6k, is the SEC and CFTC hearings that were scheduled on 2/7. In the days leading up to the hearings, investors and traders were in a panic, fearing the worst possible outcome from the US regulators. These fears were entirely overblown, and really made no rational sense. The CFTC just approved Bitcoin futures in December, so why would they now attempt to ban the cryptocurrency and destroy the new

trading instrument they just created? They wouldn't, so all the fear-based selling was totally overblown. When the ruling came down on 2/7, everyone realized they were actually favorable for the market, and Bitcoin sharply reversed by gaining nearly 100% in the following two weeks.

The main takeaways from the CFTC and SEC meetings weren't anything bad to Bitcoin. They did propose regulations on the ICO market, which isn't necessarily a bad thing, as about 95% of new ICOs have proven to be outright fraudulent, with no underlying business model behind the tokens. They also said most ICOs are in reality unregistered security sales and need to be regulated for consumer protection. As far as Bitcoin decisions, though, both the SEC and CFTC showed their support for the blockchain and the decentralized solutions that it offers. Investors and traders have responded positively as well, as the panic selling came to an immediate halt following these discussions.

Another recent development to pay attention to is the sale of Poloniex, one of the largest crypto exchanges in the world. A company called Circle has agreed to purchase Poloniex, and Circle is backed by Goldman Sachs. According to a leaked document, Circle is going to apply to register Poloniex as a broker-dealer, and according to the FCC, if Circle were to do this, they would forgive any and all violations of securities law before the time they were taken over.

If the contents of this document are indeed true, it's incredibly bullish for Bitcoin and the entire cryptocurrency industry. If the FCC is willing to let a major player like Goldman Sachs control one of the worlds largest exchanges, that opens the doors wide

open to institutions that are looking for a safe and trusted custodian of their trillions of dollars. Financial institutions are typically not allowed to own the securities they recommend, so it's been problematic for them to actually buy Bitcoin given this legal requirement. With Goldman Sachs entering the space, buying one of the largest exchanges in the world, this could mean they're setting themselves up to create institutional-grade custodial services. If that happens, there is an absolute tidal wave of money that would come pouring in.

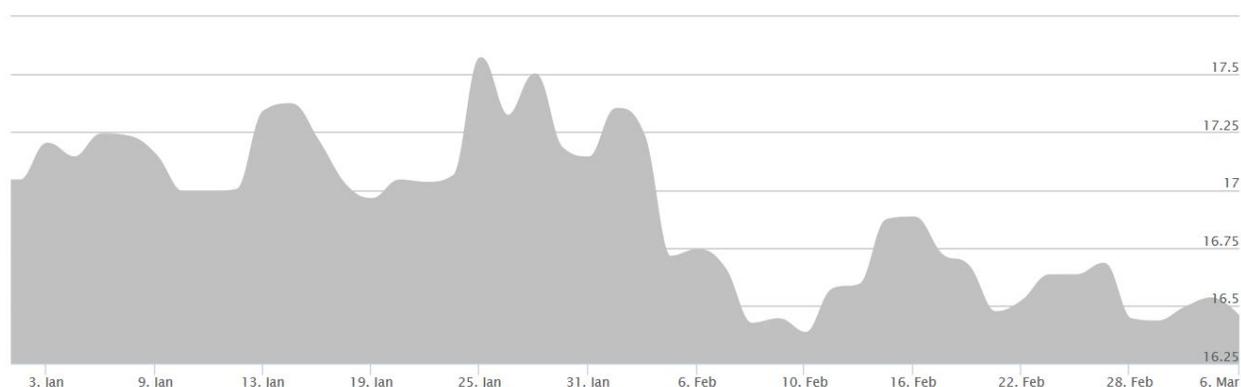
Once these custodial services are open, it's unlikely we'll see Bitcoin trading anywhere near the levels it is at today. While price predictions are kind of impossible here, it's common sense that Bitcoin will skyrocket once these services open up. Until that point, volatility and dramatic price swings will probably be the norm. We've bounced off \$6k sharply, and if the standard rules of technical analysis apply here and we see the W bottom, we could revisit that low before moving higher. V bottoms happen as well though, so it's entirely possible that the move from \$6k back to near \$12k is going to hold.

Again, we suggest you sit back and ride out the volatility. Timing these market moves is near impossible, so keep the big picture in mind and try not to think too much about short-term overreactions. If you're new to the cryptocurrency space, use this pullback wisely and establish your position in Bitcoin.

We suggest using [Coinbase](#) to take your first position.

Again, be careful with your position sizing; don't invest more than you're comfortable losing. Also expect major volatility, with possible price swings of 50% or more in a matter of days.

## Silver Update



February turned out to be a rather quiet month in the precious metals market. Silver stuck to a very tight trading range, hovering between the \$16.40 and \$16.80 levels. This is a very tight range we've been stuck in for the past month, and we still have the larger \$15.50 to \$18 range we're also stuck in.

Volatility finally returned to the equities markets in February, as we saw two different 1000+ down days on the Dow, one of them being the largest single-day drop in the history of the market. Things bounced back strongly, though, so the fallout remains to be seen. If we retest the lows, gold and silver could see some action as investors flock to safe havens. On the other hand, if we can continue upwards to new highs, that will sound the all clear in the equities market, and things will remain more or less ignored here.

The sudden 1500+ drop in the Dow, followed by another 1000+ drop a few days later should serve as a warning sign to investors. Complacency has taken over here, as a lax monetary policy has led to steady corporate earnings growth. As interest rates are

raised, we will see the corresponding slowdown in economic activity, and likely more volatility in the stock market.

For now the market is still riding high on the new corporate tax rates, as they've been slashed down to 21%. This will add a lot to the bottom line of most companies, so even with an economic slowdown, companies will have more money for share buybacks, dividends, and their overall valuation metrics will appear more attractive. Until we get a second leg down here, gold and silver will probably stay within their well-established trading ranges.

For those of you who don't own any silver, times like this are the perfect time to buy. Prices are low, demand is low, and the stock market just gave a giant warning sign that things may get a little shaky going forward. It would be wise to have your position in place before silver becomes a popular investment again.

You can find great prices from a trusted supplier at [Money Metals Exchange](#).



**COUNTERMARKETS**  
Trends & Strategies for Maximum Freedom

**SNEAK PEEK at ISSUE 14 (April 5<sup>th</sup> 2018)**

**TRENDS & FORECASTING**

Tech Companies Are Betting Heavy On 5G To Supercharge The Internet Of Things

**ENTREPRENEURSHIP**

Lessons From An Agorist Brick And Mortar Business

**SELF-SUFFICIENCY**

Everything You Need To Know About Rainwater Collection

**WEALTH**

10 Best Books For Your Wealth Library

**BITCOIN & SILVER REPORTS**

Not a member yet?

**[Click HERE to Join Counter Markets!](#)**

## **DISCLAIMER**

This newsletter is not investment, legal or tax advice. The information contained here is for educational and entertainment purposes only. If you are considering a significant investment into any assets or strategies mentioned here, it is best to consult a licensed professional. No links will contain affiliates that make costs higher for subscribers.